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DIESEL RAILWAY TRACTION SUPPLEMENT

The July issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, will be ready on July 1, price 1s.*

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on further paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list which will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE *in that the size of the page has been reduced from 9 in. × 12 in. to 8½ in. × 11½ in. The type area of the page remains the same, namely, 7 in. × 10 in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war*

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 a.m. till 5.30 p.m.
The office is closed on Saturdays

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Government Control of Canals

THE Government has decided to bring the principal canals and public carriers by canal under a scheme of control similar to that which is exercised over the railways. In announcing this decision, the Ministry of War Transport stated that this step is being taken to ensure the full use of the canal system in the war effort, and that the arrangements will take effect as soon as the financial provisions have been agreed. The object is to relieve road and rail of traffic which may be suitably carried by canals, and about 2,500 miles of waterways will be affected by the scheme. The canals will continue to be run by the existing organisations but Governmental control will be exercised over charges. It is expected that by treating the canal system of the country as a single unit some economies may be effected, and it will be possible in many instances to divert barges from canals not fully employed to others where there is a demand for them. It will be recalled that, in the early days of the war, the canal industry approached the Government with a view to securing a form of control and guaranteed revenue similar to that then in force for the railway companies. Hitherto, although it has been desirous of making as full use as possible of the canals to relieve other forms of transport, the Government had not acquiesced to that suggestion, but it had, however, taken steps to assist the canals; one of these was the granting of a bonus to companies in respect of employees attracted to the industry and trained in barge working. The late Mr. Frank Pick undertook an extensive survey of the British canal system and reported to the Ministry of War Transport shortly before his death last November. A number of the recommendations he made have been put into effect, and as a result a considerable increase in the amount of traffic carried by canal has been made possible. It is believed, however, that there is scope for a further development of canal traffic, although it is realised that one of the greatest problems to be overcome is that of manpower.

Rudeness to the Public

In recent months there have been indications of considerable deterioration in the normal good manners of a wide variety of those who come regularly into contact with the public. Transport workers, and perhaps particularly road passenger transport workers, must be included in this indictment. An article published recently in the *Daily Mail* drew attention to this development with which many have become all too familiar. Wartime strain would probably be adduced as the primary cause, but this explanation is not satisfactory, for it is probable that although pressure of work and other anxieties arising from the war are felt by all sections of the community, their impact is not greatest on those classes which are re-acting most unfavourably. It seems more probable that the root of the trouble is to be found in the shortage of manpower and the truculent self-importance which has been engendered among some of those who, because of their regular contacts with the public, should be especially careful to maintain the goodwill of those whom it is their duty to serve, and upon whom their employers depend. In Germany recently it has been found necessary to hold a "politeness week," and to offer prizes for the most courteous in various grades of employees. Something of the same sort might perhaps be undertaken in this country with advantage. At page 693 is given an extract from a letter sent to the press as a result of an unfortunate experience at Newcastle. The effect on the goodwill of transport undertakings whose servants thus treat the public must inevitably be serious.

The Legality of Priority Travel

In many parts of the country arrangements are in force for giving priority of travel on buses and trams to munition and other war workers, and from time to time we have described various systems of achieving this by means of identifying badges or passes. So far as we are aware, the legality of these arrangements has never been challenged by any interested or aggrieved parties, but the subject was recently given prominence by a statement made by the General Manager of the Blackpool Corporation Transport Department to his committee to the effect that any effort to distinguish between war workers and other travellers, or to require the formation of separate queues, was *ultra vires*. If he were correct in his view, doubtless the matter could be adjusted readily by means of an Order from the Minister of War Transport under the Defence Regulations. A simpler method under existing legislation has been suggested officially, namely, for the Regional Transport Commissioners to attach as a condition to a defence permit for a road service the requirement that the holder of the permit should give preference between specified hours or on specified journeys to workers carrying a prescribed token or certificate of identification. We are advised that this preference might be given to the total

exclusion of other would-be passengers, or might take the form of the many existing arrangements whereby priority is given to war workers and the balance of available accommodation used by " non-essential " passengers.

Mr. Alexander Maynard

Mr. Alexander Maynard, Chief Goods Manager of the G.W.R. since 1931, retires from this position at the end of the present month, and a biographical note and photograph appear elsewhere in this issue. His eleven years in the managerial chair is almost a Great Western record—he " stayed-in " for a longer period than all but one of his eleven predecessors. His term has been noteworthy for the steps taken to meet road competition, culminating in the campaign for " square-deal " legislation for the railways. Mr. Maynard has also seen the swing back of the traffic pendulum to normal—and beyond—brought about by the present war, and has had to deal with the correlative man-power problems and freight rolling-stock difficulties. All are agreed that his is a well-earned retirement, and the inevitable general sense of regret is tempered by the knowledge that he will find in his increased leisure new avenues for the expression of those qualities which have given him many friends in the business world and the loyal co-operation of colleagues and staff.

Producer-Gas for Road Transport

Powerful support for the policy of the Ministry of War Transport in relation to the use of producer-gas units for road transport has been forthcoming from Sir Frederick Heaton, the Chairman & Managing Director of Thomas Tilling Limited. He has at his disposal an unexampled accumulation of operating experience and the results of technical research. In a recent letter to *The Times* he stated that in his view it would be a great mistake to embark at once upon such an ambitious scheme as that proposed by the Duke of Montrose. The use of large numbers of producer plants on the Continent is made possible by the extensive reserves of timber suitable for conversion into charcoal, which is the fuel normally used in many European countries. In Great Britain there are no such reserves of timber and it is the adaptation of producer plant to function on coal and coke that has occasioned our chief difficulties. Professor K. Neville Moss of the University of Birmingham, in a subsequent letter, called attention to the difficulties of fuel selection and pointed out that fuel suitable for one type of producer may be quite unsuitable for another. The question of the selection of a fuel involves more than gas generation. Fuel must not form clinker in the producer ; it should be of high bulk density ; sufficiently tough to avoid undue breakage ; and should give a gas which when cleaned does not cause an undue amount of cylinder wear. The only plant built to run on coal or coke which has been tried adequately and proved successful in a substantial way under ordinary commercial conditions is the Government Emergency type, with certain important modifications such as the Morison water filter developed by the Tilling Group of Companies. This is the producer-gas unit which has now been adopted by the London Passenger Transport Board.

Electrification Records

The bringing into operation on March 1 last of electric working between Jörn and Boden in Sweden give the Swedish State Railways the distinction of owning the longest continuous railway electrification in the world, from Riksgränsen, in the extreme north through Boden, Bräcke, Storvik, Stockholm, Linkoping, and Malmö to Trälleborg, in the extreme south of Sweden. The distance is 1,349 miles, and if the Norwegian section of the Riksgränsen line, between that frontier town and Narvik, be added, a total of 1,376 miles of electrified line is obtained. The nearest competitor in length, and, curiously enough, in practically the same north-south direction as the route just mentioned, is the combination of the German electrification from Saalfeld through Nuremberg, Munich, and Innsbruck to the Brenner Pass with the now continuous Italian electrification from Brennero through Verona, Bologna, Florence, Rome, and Naples to Reggio di Calabria, on the Straits of Messina—366 miles in Germany and 902 miles in Italy, or 1,268 miles in all. Whereas the Swedish system of electrification is exclusively 16,000 volts a.c., and the German 15,000 volts a.c., both single-phase, the Italian from Brennero to Bologna is 3-phase a.c. at 3,700 volts, and the remainder from Bologna to Reggio is 3,000 volts d.c. Perhaps the most striking fact is that of the total journey of 3,069 miles from Narvik, in the Arctic Circle, to Reggio, on the Mediterranean, 2,644 miles is now electrically operated, the only non-electrified gap being the 60 miles across the Baltic from Trälleborg to Sassnitz, and the 365 miles of rail from Sassnitz through Berlin and Leipzig to Saalfeld.

Electrification and War

The foregoing note is a reminder of the influence that war has on electric traction, more especially in countries which have little or no indigenous coal but ample resources of water power. It was the cutting off during the 1914-1919 war of coal supplies to Switzerland, by both Germany and France, that hastened the beginning of large-scale electrification in the former country, and between the two wars the electrifying of all but the most minor Swiss lines has been completed, so that Switzerland is in a far happier transport position in this war than in the last. Equally in Italy railway electrification, well advanced up to the entry of that country into the war in 1940, has been continued, difficulties notwithstanding, in order to render the Italian State Railways progressively less dependent on imported coal for their operation. The same urge has been at work in Sweden. It is also of interest that passenger services over electrically-operated railways appear to be the least affected of any in war-time. By far the best long-distance train service in France, for example, is that between Paris, Tours, Bordeaux, and the Spanish frontier at Hendaye, and though this is throughout in German-occupied territory and an important route of Axis communication, the fact that it is electrified throughout has a considerable bearing on the service provided. Even in our own country, with electricity produced by coal and not by water power, the only express service still with running times practically equal to pre-war is the electrified service of the Southern between London and Eastbourne, Brighton, Worthing, Bognor, and Portsmouth. Thus it is still possible to reach Brighton in 60 min. from London, and to come up from Portsmouth, with four stops, in 97 min.

Co-Ordinated Railway Action

Although the Railway Clearing House was established a hundred years ago for the primary purpose of facilitating through bookings of passengers and freight, and for the apportionment of the charges for such through conveyance (work which is still represented by the Traffic Department of the R.C.H.), that organisation has extended the scope of its activities during the past century in many ways. Broadly, these have all resulted from the fact that early railway companies soon found it desirable to abandon devious ways of attracting business, much of which resulted in wasted effort, and to discuss problems round the conference table. The R.C.H. became useful in providing a neutral ground where the executive officers of the different lines could meet and discuss the various matters connected with railway management, and Railway Clearing House meetings have long become recognised throughout the railway industry, by the many trading interests of the country, and by the various Government departments. The R.C.H. has provided the needful secretariat for all the various and numerous conferences, which in 1939 totalled nearly two thousand. Such work, which forms the subject of a short article on page 700 of this issue, has been both far-reaching and beneficial in its effect. One instance in the past is provided by the part which the Railway Clearing House took in securing the consent of the Government to the adoption of Greenwich time as official throughout the country, to obviate difficulties in operating timetables when every part of the country used its own solar time.

Electric Control of Catchpoints on Single Line

At page 695 appears a description of a method of electrically controlling catchpoints on single lines used by the L.M.S.R., for the particulars of which we are indebted to Mr. A. F. Bound, the company's Signal & Telegraph Engineer. It will be remembered that after the accident between Carrbridge and Aviemore on March 5, 1940, when 21 wagons and a brake became detached from a goods train and collided with another after running back about 9¼ miles, Mr. J. L. M. Moore recommended the installation of such catchpoints on that section. The installation now described was already in use and the L.M.S.R. was therefore able at once to make satisfactory proposals to the Ministry of Transport, meeting the locking and other safety requirements laid down in Mr. Moore's report. The most important is, of course, that a facing movement shall not be authorised until the points have been locked and detected in position for it and that they shall remain so until the section is again normal. They must also always be free to trail under trains running the other way. The circuits used to accomplish this will be of interest, we believe, to readers in India and elsewhere overseas, where there are many steep gradients on single lines. There would be no difficulty in adapting them to the various forms of token apparatus.

The Shape of Things to Come?

ON June 17 an interesting debate was opened in the House of Lords by Lord Reith who asked whether the Government, with a view to maximum efficiency in the national interest, is giving immediate attention to the future constitution, control, and management of the essential public services. In the course of his speech, Lord Reith, after contending that civil servants should not be concerned with the management of these essential services, proposed the formation of a corporation which would embrace the whole of the transport services, including the railways which should also be brought under unified management. After suggesting that, from a railway point of view, it would be preferable that any rationalisation of railways which might be deemed necessary, should be carried out by railwaymen rather than politicians and civil servants, he pointed out the obvious undesirability of dealing with railways, which provide and maintain their own roads, and leaving road transport untouched. For this reason he argued it was essential that road transport should be part of this corporation and under its direction and control, and that a similar course should be followed with canals, coastwise shipping, and internal air services. As the result, conveyance rates would be based on speed and other considerations, and the sender would lose his present right of determining by what system of transport his goods should travel. Lord Brabazon supported this view and urged the Government to find some way of making the present nominal amalgamation of the railways permanent by the establishment of a corporation which was neither private ownership nor nationalisation. He agreed that it would be foolish to amalgamate the railways and leave them open to unrestricted road competition, and advocated the formation of a corporation running the railways with separate corporations running road transport, canals, and coastwise shipping, all joined at the top in a pool so they could run efficiently, a scheme somewhat similar to that already operative in Northern Ireland. In winding up the debate, Lord Portal mentioned that the Ministry of War Transport, the railway companies, the British Road Federation, and the Chamber of Shipping were all preparing their schemes for post-war reconstruction, which would eventually be laid before the Government for consideration.

Although this debate may have seemed somewhat premature because of the present state of hostilities, it is obviously desirable that the preparation of post-war transport plans should be proceeded with in order that adequate consideration may be given to the various, and almost certainly controversial, proposals which will be propounded by the interests concerned. During recent years the desirability of co-ordinating all inland transport services has been mooted frequently, but the various suggestions made have not all been uninfluenced by political considerations, and suggestions for the re-organisation of the railways have been made the occasion of much uninstructed criticism of their past history and operations. As, by reason of the war, Great Britain is now a creditor nation, it is obvious that one of our most urgent post-war problems will be the restoration of, and, if possible, an increase in our former export trade. Thus the national post-war position will necessitate strenuous efforts being made to secure a well-planned national economy, and, as internal transport is of such vital importance to the nation's productivity, the question as to whether it will be advantageous to make any alteration in the present ownership or relationship of the various internal transport systems of the country must be among one of the first of the post-war problems to receive consideration.

As far as the railways are concerned, some considerations are mentioned below which should be borne in mind in connection with any proposals to alter their existing ownership or control. In 1931 the Royal Commission on Transport, after a lengthy enquiry, expressed the view that "for many purposes—in fact, for the main business of transport—the railways are indispensable." When, on the outbreak of war eight years later, the Government took control of the railways the undertakings were at a higher state of efficiency than ever before—thanks entirely to private enterprise—and it is generally admitted that they compared favourably with nationally-owned systems in other parts of the world. Moreover, if any confirmation were required of the Royal Commission's view, the story of railway activities since the war, when it can be revealed, will provide abundant evidence of the vast national burden they have successfully carried. It is true that under the stress of war conditions, the railways have greatly extended their closer working arrangements, particularly on the operating side, and it is quite possible that some of these wartime measures may be worth retention after control ceases. These improvements, however, are the logical development of pre-war arrangements and are certainly no condemnation of private ownership or any sound reason for interference with the present system. A further point is that any proposals for the co-ordination of the railways and other forms of transport should be judged primarily from the standpoint of whether they will benefit the nation as a whole. Should any proposals which may emerge in future months satisfy this requirement, we suggest it is imperative that any reorganisation should continue to give scope for the continued exercise of initiative and enterprise, features which are more usually synonymous with commercial than State management and ownership. It will be generally agreed that the various forms of transport should be employed for the purpose for which they are each most particularly suited and that they should be complementary rather than competitive. Allocation of traffic is unlikely to provide the best solution of the national post-war transport policy, and any scheme which may be evolved must of necessity have consideration for the burdens which the several forms of transport have to be able and prepared to carry during times of national emergency.

Bus Industry Reorganisation

THE first public indication of an important reorganisation in the structure of the Tilling and British Electric Traction groups of companies was given in a notice despatched on June 17 to the shareholders of Tilling & British Automobile Traction Limited. This stated briefly that arrangements were now under consideration for the transfer of the company's assets to two new companies which it is proposed to form. The proposals involve the replacement of every existing £1 share in Tilling & British Automobile Traction Limited by two shares of 10s. each, one in each of the two new companies. The combined holdings of a shareholder in the two new companies will thus correspond to the existing holding in class and total nominal value. No increase of capital or payment by any of the shareholders will be involved. The formulation of the proposals is well advanced, and full details will be submitted to the shareholders as soon as the necessary legal and other formalities have been completed. It is believed that this re-allocation of interests will lead to greater efficiency and so be of advantage to the shareholders. As practically all the motorbus operating companies which are directly associated with Tilling & British Automobile Traction Limited are railway associates, it may be stated at once that the interests and shareholdings of the railways in these operating companies will not be affected in any way. Nevertheless, as large shareholders in these bus companies, the main-line railways are naturally interested in the outcome of the proposed arrangements, and will benefit through their shareholdings in any improved efficiency which may result.

Pending the issue of further details of the scheme, which involves the segregation of the Tilling interests from those of the British Electric Traction Company, it is of some interest to recall how the present organisation of the bus industry in England and Wales came to be evolved. This was described in some detail in an article published at pages 473 to 476 of our issue for March 11, 1938, and a revised chart showing the organisation of the bus companies in the B.E.T. and Tilling groups at January 1, 1942, was published as a folding plate in our issue of April 17, 1942 (page 480A). It may be recalled that, in the early days of motorbus development, the British Electric Traction Company held extensive and important tramway interests in many parts of England and Wales, and in 1913 decided to launch out extensively into the motorbus business by means of the establishment of bus feeder services by many of its local tramway companies. In addition, the B.E.T. interests formed the British Automobile Traction Co. Ltd. to watch motor developments on its behalf. This company took over the Deal & District Motor Services (a B.E.T. organisation) in April, 1910, and subsequently established various other branches, notably in the Derbyshire, Buxton & Cheshire district in November, 1913, and in the Thames Valley district in July, 1915. In addition, the British Automobile Traction Company acquired interests in various provincial bus companies, including the Aldershot & District, Maidstone & District, Ortona (Cambridge), and Trent. The war of 1914-19 retarded the establishment of new services, but the B.A.T. took the opportunity to perfect its organisation; to acquire interests in further existing businesses; and to plan an extensive scheme of territorial agreements both among its own associates and also with friendly neighbours. It was during the formation of one of these "area" companies on the Kent coast that Thomas Tilling Limited first became associated with the group. The East Kent Road Car Co. Ltd. was incorporated on August 11, 1916, as an amalgamation of various motorbus businesses with a view to providing services in that portion of Kent east of a line drawn through Faversham and Ashford. The businesses acquired included the Folkestone District Road Car Company (of Tilling's), and the Deal branch of the B.A.T., together with two undertakings in the Thanet area in which the B.A.T. group had secured an interest. Mr. Sidney Garcke outlined the formation and development of this business in his speech last December at the 25th ordinary general meeting of the

company (see our January 23 issue, page 126). The same process of amalgamation resulted in the formation of the Southdown Motor Services Limited, on June 2, 1915, under B.A.T. auspices, and a merger of interests with Tilling's in this area took place in 1917.

During the next few years Tilling participation in various of the B.A.T. subsidiaries was gradually increased, and, in addition, Tilling's acquired in 1922 a considerable holding in the B.A.T. itself and nominated two directors to the board of that company. At the beginning of 1928 the B.A.T. held substantial interests in 19 transport undertakings, in 11 of which Tilling's also had holdings. The anomalous position arising from the fact that Thomas Tilling Limited was a large shareholder in the B.A.T. Company and yet had a direct interest in over half of the subsidiary undertakings was one which the directors of both concerns thought it advisable to clear up, as it was felt that practical difficulties relating to the control of the different undertakings might arise. It was, therefore, arranged that the capital of the B.A.T. should be increased and its name changed to Tilling & British Automobile Traction Limited; that the latter company should issue shares to Tilling's in exchange for shares in provincial companies; and that Tilling's should nominate four directors to the board of Tilling & British Automobile Traction Limited. The scheme was duly carried out, and the change of name took place in May, 1928. This rearrangement also provided a suitable opportunity for Tilling & British Automobile Traction Limited to acquire a large number of shares in other important provincial bus companies from the British Electric Traction Co. Ltd., which company increased its already large interest in the reconstructed company. Many of the tramway undertakings in the B.E.T. group established bus services in the early days of motor traction, and in the course of time these bus services had either taken the place of the tramways or had become so large in relation to the tramway operations as to make many of the concerns virtually bus undertakings. It was those companies which derived their revenue wholly or almost entirely from bus operations which were deemed more suitable to be directly controlled by Tilling & B.A.T. The chief ones were: the Peterborough Electric Traction Co. Ltd., the Wrexham & District Transport Co. Ltd. (afterwards Western Transport Co. Ltd.), and the Yorkshire Traction Co. Ltd. (formerly Barnsley & District Electric Traction Co. Ltd.). The result was that from Tilling's or the B.E.T., or from associated companies of the latter, the reconstructed Tilling & B.A.T. acquired blocks of shares in 18 undertakings, in 13 of which it already had holdings.

During 1929 arrangements with Tilling & British Automobile Traction Limited were concluded by the railway companies for the co-operative and co-ordinated working of rail and road services, and the relative railways acquired in the operating companies a shareholding interest equal to that held by the Tilling & British Company. In connection with the L.M.S.R. and L.N.E.R., the plans were carried out jointly, and the railway shareholdings acquired were proportionate to the respective interests of the two railways in the areas covered. As may be seen from our chart of April 17 last, the position at the beginning of the present year was that in every case the Tilling & British shareholding was exactly equal to the total railway shareholdings in a particular operating company. The ordinary share capital of Tilling & British Automobile Traction Limited (£4,000,000) is controlled by equal holdings of the British Electric Traction Co. Ltd. (£1,933,141) and Thomas Tilling Limited (£1,933,142). For many years the chairmanship was in the nomination of the British Electric Traction Co. Ltd., but a new practice was begun in February, 1936, whereby the Chairman in alternate years is nominated by Thomas Tilling Limited. Sir Frederick Heaton (who became a Director of the Tilling & British company on April 30, 1928, in connection with the reorganisation at that time) thus now alternates with Mr. Sidney Garcke of the B.E.T. in the occupation of the chair. For practical operating convenience various of the Tilling & British companies have been under the management of the B.E.T. group and others under Tilling management. The former enjoy the advantages of associate membership of the British Electrical Federation (the work of which was outlined at page 689 of our issue of October 22, 1937), and the latter are members of Tillings Association. The B.E.F. companies are:—

	Ordinary shares T.B.A.T. holding £	Total £
Aldershot & District Traction Co. Ltd.	82,721	250,000
Crosville Motor Services Limited	549,428	1,100,000
Cumberland Motor Services Limited	49,999	150,000
East Kent Road Car Co. Ltd.	151,356	450,000
East Yorkshire Motor Services Limited	149,362	300,000
Lincolnshire Road Car Co. Ltd.	79,914	200,000
Maidstone & District Motor Services Limited	263,492	750,000
Ribble Motor Services Limited	530,445	1,200,000
Southdown Motor Services Limited	242,793	750,000
Trent Motor Traction Co. Ltd.	225,440	540,288
Yorkshire Traction Co. Ltd.	214,578	437,500
	£2,539,528	£6,127,788

Those Tilling & British companies which are members of Tilling's Association (see page 708) are:—

	Ordinary shares T.B.A.T. holding £	Total £
Caledonian Omnibus Co. Ltd.	118,494	125,000
Eastern Counties Omnibus Co. Ltd.	209,372	756,000
East Midland Motor Services Limited	125,000	250,000
Hants & Dorset Motor Services Limited	213,556	550,000
North Western Road Car Co. Ltd.	373,332	750,000
Southern Vectis Omnibus Co. Ltd.	57,500	115,000
Thames Valley Traction Co. Ltd.	121,701	250,000
United Automobile Services Limited	798,412	1,627,233
West Yorkshire Road Car Co. Ltd.	391,686	787,500
Wilts & Dorset Motor Services Limited	30,724	120,000
	£2,439,777	£5,330,733

Presumably this division will form the basis of the segregation of interests which the present scheme envisages.

The balance sheet at December 31, 1941, of Tilling & British Automobile Traction Limited indicates that the shares in associated and subsidiary companies are valued *on average* at approximately par, as the company owns 5,187,794 shares which are represented in the balance sheet at £5,197,219. In addition to the ordinary shares in bus companies shown in the above two lists, the Tilling & British investments include:—

Shares of £1	Company	Class of share
111,400	Birmingham & District Investment Trust Limited	Ord.
37,220	Birmingham & Midland Motor Omnibus Co. Ltd.	8% Cum. Pref.
10,725	Motor Coaches Limited	Ord.
200	Southern Vectis Omnibus Co. Ltd.	6% Cum. Pref.
39,622	United Automobile Services Limited	7% Cum. Pref.
9,322	Yorkshire Traction Co. Ltd.	7% Non-Cum. Pref.
208,489		

There is also the Tilling & British holding in London Transport stocks, which is represented in the balance sheet at par as £173,593. The Birmingham & District, the Birmingham & Midland, and the Yorkshire Traction holdings may be expected to pass to the B.E.T. interests; they total 157,942 shares. Similarly, in the new segregation of assets, it seems a reasonable assumption that the Southern Vectis and United Automobile preference holdings (totalling 39,822) will pass to the Tilling group. Mr. R. J. Howley announced on Friday last that the London Transport holding is to be divided equally. It is possible that Motor Coaches Limited (a petrol transport concern) will pass to the new Tilling holding company. This would amount to an approximately equal division of assets. As our summary of the development of the present situation has shown, this is roughly the course which general trends would suggest. Precise details of the two new companies—to be called B.E.T. Omnibus Services Limited and Tilling Motor Services Limited—must await the official statements which will doubtless be issued to the shareholders of Tilling & British Automobile Traction Limited in due course.

What "Transcontinental" Means

IN common parlance the word transcontinental conveys a passage across a continent from one seaboard to another, but there are at least two noteworthy examples in railway language where the word means less than this. One is in Australia, where the term is often applied to the Trans-Australian Railway of the Commonwealth Government, connecting Western Australia with the Eastern States and providing the final link in a chain of transcontinental railways, but, by reason of breaks of gauge, not making possible through transit from ocean to ocean. A very much older example is to be found in the United States, where, in railway parlance a transcontinental railway is one crossing the western part of the country only. As our American contemporary *Trains* commented recently, this is probably because there has never been a real transcontinental railway in the U.S.A. The two oceans have been linked since May 10, 1869, but there has never been a regular through train service over the lines of the various companies owning the numerous ocean-to-ocean links now available. From time to time, however, plans have been formulated with this object, and two which come readily to mind are the Gould plan in the early years of this century, and the more recent Van Sweringen system. Far less well known is a proposal of 1884 of Mr. Collis P. Huntington, who was one of the big four who built the Central Pacific and later founded the Southern Pacific, to build other lines in California and Oregon and to build east to New Orleans. Huntington had acquired control of the Chesapeake & Ohio in 1869, and had expanded the system into a major trunk line. In 1884, at a New York board meeting, he proposed to his California associates that the Southern Pacific should acquire the C. & O. and create a single railway from the Atlantic to the Pacific, but the suggestion was turned down.

The Scrap Heap

In railway parlance all sorts of things other than passengers conveyed by passenger train come under the generic term of "parcels." The small terrier who had escaped from his rope was enjoying himself among the station crowd, and was causing some commotion by tearing up and down. "Hi, there," came the anxious tones of the porter in charge. "Stop that dorg, for the love of Mike! He's a parcel!"

* * *

Retirement of a Veteran

The Principal of the Swindon Works Staff College has retired after holding that office for 32 years. You did not know there was such an Institution at Swindon! Well, perhaps it has never been advertised and the "Principal" held no academic degrees, but he had knowledge which was more valuable—an intimate knowledge of the subject he had to teach and a real and sympathetic understanding of his pupils.

During his tenure of office, more than four thousand pupils have passed through his hands, and today they will be found in all parts of the world, some perhaps just carrying on their trade, but many holding responsible positions in the engineering world; but each and all of them will have pleasant memories of "Old Joe," even if their memories of the tasks he set them are not so pleasant.

Chargeman Joe Miles has retired after completing nearly 52 years' service with the company and 32 years as charge hand. During the whole of these 32 years he has been in charge of the apprentice machines on which the engineering apprentices gain their first knowledge of turning. Picture the task of supervising day by day 30 or 40 apprentices. Unlike the schoolmaster, there could be no recourse to "do 40 lines after hours" in order to maintain discipline. True, as a last resource, they could be dismissed, but Joe Miles would have felt he had failed should he have had recourse to such drastic action. Yet during all these years he kept discipline amongst these youths by that understanding of youth which is such a gift to those endowed with it. In these days of welfare service one can visualise what wonderful service he could render in a different age and different sphere.

One can picture a works manager in India, on reading of his retirement, exclaiming, "Good Lord! Old Joe must be nearly 100," for in youth just a few years' seniority almost spells old age. Many of the boys under the scorching sun of the desert will recall to each other the pranks they tried to play on Old Joe, but each and all will remember him with respect and affection.

Chargeman Joseph Miles goes into retirement with the best wishes of every individual with whom he has come into contact during his many years at Swindon Works, and the hope that he will live long to enjoy the new life and environment into which he has entered.—H. J. L.

* * *

Employees from garages and offices of the Birmingham & Midland Motor Omnibus Co. Ltd. all over the Midlands have recently subscribed £100 to the Cancer Research Fund as a token of respect and esteem for the late Mr. John H. Ward—an official of the company for many years—who expressed a wish before he died on April 23 last, that, instead of spending money on flowers at his funeral, his colleagues should make a contribution to this fund.

25,900 Ideas a Year

A suggestion system, by which employees of the Pullman Company may reap the reward of their own ingenuity and in return benefit the company, has produced 25,900 ideas during the first year of its existence from March 1, 1941. The scheme has aroused great enthusiasm and a large number of practical suggestions have been received: so far, 2,600 ideas, submitted by 1,301 individuals, have been adopted. Awards for these, made on the basis of 10 per cent. of the estimated gross savings for the first year, amounted to $29,940, and covered individual sums ranging from $5 to $375.

* * *

Coaches Forced to Waste Petrol

Green Line coaches using Cavendish Square, W., are allowed to wait there not more than four minutes. They are then driven into Portland Place, wait there for a time, and then are driven back into Cavendish Square immediately before they are due out on a journey. Because of the long daylight hours, about 50 coaches arrive ahead of schedule, as running times are based on winter black-out conditions. The waiting in Portland Place means these buses travel 280 unnecessary miles a week and waste 30 gallons of petrol.—*From "The Evening News."*

* * *

Stop watch tests recently undertaken by London Transport have shown a striking difference in the time of collecting fares on a bus or tram when all the passengers tender the exact fare, as opposed to the normal time. In a bus carrying 25 passengers fare collection took 6 minutes 25 seconds when *none* tendered the exact fare. It took 2 minutes 10 seconds when *all* tendered the exact fare.

Allied aid for Russia via Persian Gulf and Trans-Persian Railway. Military railway clerk chalks in its new destination

Newcastle, Rudest Town?

The rudest town I have struck so far is Newcastle, where I recently spent a week-end on business. After 48 hours there I felt bruised all over by mere rudeness. I hardly remember a single railway or hotel employee or petty official in Newcastle who didn't treat a civil question or request of mine as an excuse for some degree of deliberate discourtesy. The climax came when I was actually leaving Newcastle and an L.N.E.R. inspector clipped my ticket at the station barrier. "Turn right," he said, meaning I should cross the footbridge to another platform. "Which platform, please?" I asked him. "Turn right!" he repeated fiercely. "Yes," I said, "I know that, but which platform, please? That bridge leads to all the platforms." For some reason this infuriated the inspector, though I was early for my train and he had no crowd to cope with. "If I tell you," he shouted, "you'll only ask me where it is!"—*Mr. David Scott in a letter to "The New Statesman."*

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OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

January Figures for Steam-operated Railways

The Dominion Bureau of Statistics reports that the combined gross revenues for January, 1942, of Canadian steam-operated railways were $45,421,897, the highest figure in any month of January; and this compares with $36,112,595 for January, 1941, and with $38,420,735 for January, 1939, the previous peak for that month. These compilations include all steam-operated railways in Canada, which show annual gross revenues of $500,000 or over. Freight revenues reached a new peak for the month, but passenger revenues were less than in the corresponding month of the years 1926 to 1930 inclusive. Operating expenses also reached a new peak for the month at $35,110,802, compared with $29,223,863 in 1941, and $33,762,872 in 1929. Operating income increased, from $5,049,949 in January, 1941, to $7,788,800 in January, 1942. The total payroll amounted to $21,357,602, compared with $17,443,197 in 1941, and $21,558,548 in 1929. The number of employees increased from 125,821 in 1941, to 135,319, but this was 22 per cent. below the figure of 161,149 reported for January, 1921. The average wage was 19 per cent. higher in 1942 than in 1929.

SOUTH AFRICA

Capital and Improvement Estimates for 1942-43

Some further figures to those published in our May 8 issue are available concerning the railway and harbours budget for 1942-43. The estimated expenditure on capital and improvement works for the year 1942-43 is £8,771,928. Of this amount, £5,680,810 will be chargeable to loan and improvement funds and £3,091,118 to renewals fund and working votes. The allocation of the expenditure is as follows:—

FROM LOAN AND IMPROVEMENT FUNDS

	£
Construction of railways	156,602
New works on open lines	3,444,143
Rolling stock	1,029,474
Road motor services	4,168
Harbours	833,148
Airways	3,500
Working capital	9,775
Unforeseen works	200,000
	5,680,810

FROM RENEWALS FUND AND WORKING VOTES

New works on open lines	1,236,771
Rolling stock	1,575,310
Road motor services	243,668
Harbours	35,369
	3,091,118

Supplementary estimates provide an amount of £500,000 towards the cost of the new graving dock at Table Bay Harbour, which will be met from loan funds.

Less Passenger Travel

Due to the increasing demands upon the railways and the need for meeting essential transport requirements, it has become necessary to curtail passenger traffic. The railway administration explains that, during the war, it is impossible to increase the available engine power and rolling stock, and, as this is being worked beyond normal capacity now, it has no alternative but to ration railway travel. It was decided to suspend all general, seaside, and party-of-four excursion facilities, for all classes, as from May 1, 1942. Long-distance travelling by soldiers on leave will be reduced from once every four months to once every six months.

UNITED STATES

A Collision on the C. & N.W. RR.

On the morning of April 11 a collision occurred at Savage, Minn., 18½ miles west of St. Paul, between the Nightingale and the Mondamin, night trains of the Chicago, St. Paul, Minneapolis & Omaha RR., a subsidiary of the Chicago & North Western RR. The latter calls at all principal stations from Sioux City, and had been delayed at Savage by collision with a motorcar at a level crossing when it was run into by the Nightingale, a sleeping car express from Omaha *via* Sioux City and Mankato, which is due in St. Paul 10 min. after the Mondamin. Warning "torpedoes" and a flagman of the standing train were both disregarded by the driver of the Nightingale, and five persons, including three passengers, were killed, and 35 injured.

A Streamliner for Seattle

At last the complaints of the residents of Seattle as to their passenger communication with Chicago have been met, to some extent at least, by the extension of the City of Portland streamline service of the Chicago & North Western and Union Pacific Railroads from Portland to Seattle. It has long been claimed that Seattle, with its population of 350,000 or so, has been neglected as compared with Portland, San Francisco, and Los Angeles, but the difficulty was doubtless that an additional streamliner in this direction would not have been financially justified, and that it was not practicable to increase the accommodation of the original City of Portland train. The new City of Los Angeles trains, however, have made it possible to turn over one of the previous trains on this service to the Portland route, and it is a portion of the latter, consisting of diesel-electric locomotive, mail-baggage car, dormitory-kitchen car, diner-lounge car, two sleeping cars, coach-buffet car, and chair coach, eight vehicles in all, that from April 12 last has been operated through. The City of Portland, which makes one round trip each six days over the 2,272 miles between Chicago and Portland, taking 39¾ hr. in each direction, is due at Portland at 8 a.m. The through Seattle section now leaves at 8.20 a.m., and covers the 183·4 miles to Seattle in 3 hr. 40 min., arriving at 12 noon. This is not only a gain of 2 hr. 20 min. on the previous service, but also offers the convenience of through service. In the reverse direction departure from Seattle is at 2.30 p.m., 1½ hr. later than before, and arrival at Portland at 6.10 p.m., in good time for the 6.30 p.m. departure from Chicago. This section of the City of Portland thus travels 4,910 miles every six days, or 24,550 miles in a month of 30 days. As the service between Portland and Seattle is pooled, Great Northern and Northern Pacific tickets between these points are honoured on the new train.

New Yard Facilities at Baltimore

Biggest by far of all the Pennsylvania freight yard developments recently announced is the entire remodelling of freight marshalling facilities that is now to take place in and around the city of Baltimore. Two entirely new freight classification yards are to be laid out, one at Bay View, and the other at Canton, in the vicinity of Holabird Avenue, and in these yards will be concentrated the marshalling work that is now being done at a number of widely separated points in south-eastern Baltimore. The work involved includes 375,000 cu. ft. of material for track formations, 28½ miles of new tracks and electric equipment for nearly 20 miles, which with new signalling is estimated to cost a total of $3,000,000. The Bay View yard, on the south side of the Pennsylvania New York-Washington main line, will at its southbound end receive trains and classify the freight cars for delivery to various traffic centres in Baltimore and Canton, while the northbound section will receive outward traffic from these centres and marshal it into complete trains. The Canton yard, which is to be enlarged to have 30 tracks with a total capacity for 600 freight cars, is to handle the import and export traffic of the port of Baltimore.

BRAZIL

Railway Construction and the Army

Much of the railway history of Brazil is linked with the part played by the army in railway construction. At the beginning of the present century the old 2nd Engineering Battalion began work on the Estrada de Ferro Cacequi-Inhandú in the State of Rio Grande do Sul, and in 1907 this unit started the line from Cruz Alta to Foz de Ijui which was later extended to Porto Lucena. In the meantime various other corps had given such a good account of themselves that the government of the Union decided to form various railway battalions which took over the duties of their engineering predecessors. The 1st Railway Battalion continued construction to Santo Angelo and Giruá for a distance of 130 km. and was responsible also for the existing lines between Rio Grande and Bagé, Basilio and Juquarão and from Santiago to São Borja. Its work was continued by the 2nd Railway Battalion and this gave rise to the formation of the Constructional Commission of Railways in the south. This commission took over the supervision of the railways already under construction between Pelotas and Santa Maria, between Santiago, São Luiz and Serro Azul, from Dom Petrito to Santana do Livramento, and from Rio Negro to Caxias. Begun in 1933, the Santa na-Dom Pedrito line extends for 104 km. and includes the bridge over the river Santa Maria, 242 metres long, and eleven others varying from 60 to 178 metres in length. The line from Santiago to São Luiz, 116 km. long, was started in 1937 and possesses, in addition to six bridges varying from 97 to 115 metres in length, one over the river Piratini of 331 metres with a maximum single span of 100 metres. The Serro Azul branch joins this line and opens up the possibility of a junction with the Cruz Alta-Porto Limeira Line at Giruá, which, however, will necessitate the crossing of the river Ijui over a width of 400 metres.

A line from Pelotas to Santa Maria is still uncompleted but when it is finished it will provide direct communication with two of the most important towns of the State. Santa Maria is already, in fact a railway junction of importance and direct communication to Pelotas on the banks of the Patos lagoon will shorten considerably the rail distance between the Argentine frontier and the sea coast of Rio Grande. In most cases the metre gauge has been used with minimum radius of 300 metres, minimum tangent 60 metres, and maximum gradient 1·2 per cent. Stone ballast has been used and the track is constructed to take 16-ton axle-weights.

Electric Catchpoint Working on Single Lines

A method of electrical control applied on the L.M.S.R to the working of motor-operated safety catchpoints

IN his report on the accident that occurred on March 5, 1940, on the single line between Aviemore and Carrbridge, L.M.S.R., when a number of wagons became detached and ran back a considerable distance to meet an oncoming train, Mr. J. L. M. Moore recommended the provision of electrically operated catchpoints, north of Carrbridge, subject to suitable electric interlocking controls being approved, and stated that the company had made proposals to this effect. Ordinary spring catchpoints are, of course, effective on double-line sections, but something different is required on a single line, where strict precautions must be taken to ensure that there is no possibility of irregular action when a facing train movement is in progress or has been authorised. The L.M.S.R. had already put in service between Blencow, on the former Cockermouth, Keswick & Penrith Railway, and Penrith No. 1 signal box, where the Cockermouth line joins the old L.N.W.R. main line between Tebay and Carlisle, a set of electrically worked catchpoints, and by the courtesy of Mr. A. F. Bound, Signal & Telegraph Engineer, L.M.S.R., we are enabled to give the following description of the installation. The section of single line concerned is worked by Messrs. Tyer & Company's key token instruments. (It is of interest to recall that it was on the C.K. & P.R. that the early trials with Edward Tyer's first form of electric tablet apparatus were made nearly 65 years ago.)

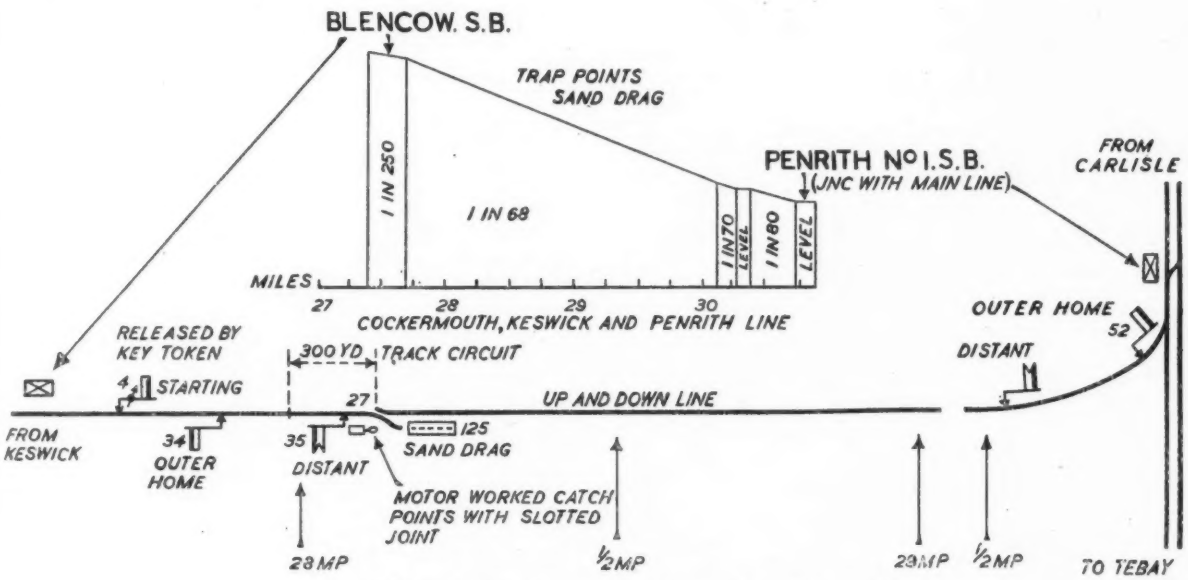


Fig. 1—General layout of section, and gradient profile

The Signalling Layout

Fig. 1 shows the general layout of the section, with gradient profile, and it will be seen that both signal boxes have outer home signals. The starting signal at Blencow is electrically interlocked with the token instrument. With the exception of two short lengths of level track the gradient falls continuously towards the main line, with a length of nearly 2½ miles at 1 in 68, on which the catchpoints and sand-drag are situated; the points stand open with the controlling lever at Blencow normal. In order to prevent any extraneous currents from operating the points while a train is travelling towards them in the facing direction, track circuit is provided for 300 yd. on the Blencow side of them, directly controlling the point motor circuits in the normal and reverse positions, but the control circuits are so arranged that if the motor has begun to move before the track circuit is occupied it can complete its movement thereafter; the distance of 300 yd. is sufficient to ensure the points finishing their stroke before a train can reach them.

Fig. 2 shows the circuits designed to ensure proper control being obtained over the working of the points. The key token instruments are operated on metallic circuit, the recommended practice at the present day, and the phase changing, lock circuit and ringing key contacts work in the usual manner. The line signals, however, are of two strengths. At Penrith No. 1 the battery connection *B* is normally fed through the contact on the proving (*GCR*) relay of outer home signal No. 52 and the normal contact on its lever, so that the full signalling current is transmitted to line when the ringing key is depressed, through the 40 ohm winding of the indicator latch coil. If the outer home arm is not fully "on," or lever No. 52 not normal, the resistance *R1* is in circuit and the value of the line signal is reduced so that although the bell relay, *BXR*, at Blencow can be operated the main control relay, *BCR*, cannot, and therefore no token can be obtained there. At Blencow a similar arrangement is provided; the proving circuit passes over contacts on the electric lock of No. 4 starting signal, normal contact on No. 34 outer home lever, contact on the proving relay for the same signal and the normal contact on the point repeat (*WKR*) relay for No. 27 catchpoints, so ensuring that these are set for the trap. The working of the remaining circuits associated with the Blencow instrument has also to be noted. Connected in the line circuit joining the two phase changing contacts, between the 50 ohm needle indicator windings and the top contact of the ringing key, in addition to the bell relay, is an unbiased polarised relay *LR* and a biased polarised relay *ZR*. The main polarised relay *BCR* is repeated—when operated by an in-phase current—by another relay, *BCPR*, and there is an additional neutral stick relay *BS*, which is dropped when *BCPR* is picked up in the process of endeavouring to extract a token. The token lock, *BL*, the energisation of which is dependent on the picking up of *BCPR* (proving *BCR* correctly actuated by an in-phase current) and the dropping of stick relay *BS*, also requires the *WKR* relay reversed, proving that the signalman has set the catchpoints for the straight track before the token can be taken out. Directly *BS* falls, however, the control circuit for the catchpoints lever is opened, so that it must remain reversed until *BS* is picked up again. The pick-up circuit for *BS*

is closed by the energisation of relay *ZR* by an in-phase current, provided *BCPR* is de-energised, and therefore the lock on the catchpoints cannot be released until the token is put back in the Blencow instrument or taken to Penrith No. 1 and inserted there, and the usual signals are thereafter exchanged.

Process of Signalling

When the signalman at Blencow requires to despatch a train he reverses No. 27 points and consequently, when that operation is complete, relay 27 *WKR*, and obtains permission from Penrith No. 1 in the usual way. The operation of the bell key at the latter box transmits the full strength line signal—provided all " proving " is correct—and the first full strength line current can be transmitted from Blencow to release a token at Penrith No. 1. The first out-of-phase line signal received at the former reverses the unbiased polarised relay *LR*, locking lever No. 27 normal until the in-phase condition is restored, so that the points must remain free to trail while the train is in section.

The working of the 3-position needle indicator does not differ from that usually employed. The needle is moved to and fro by the 50-ohm windings. The abstraction of a token energises the 30-ohm latch winding which moves the latch to allow the needle to swing fully over to " train going " and a current from the releasing battery energises the 40-ohm winding which moves the latch into the engaging position and prevents the needle from travelling past the " train

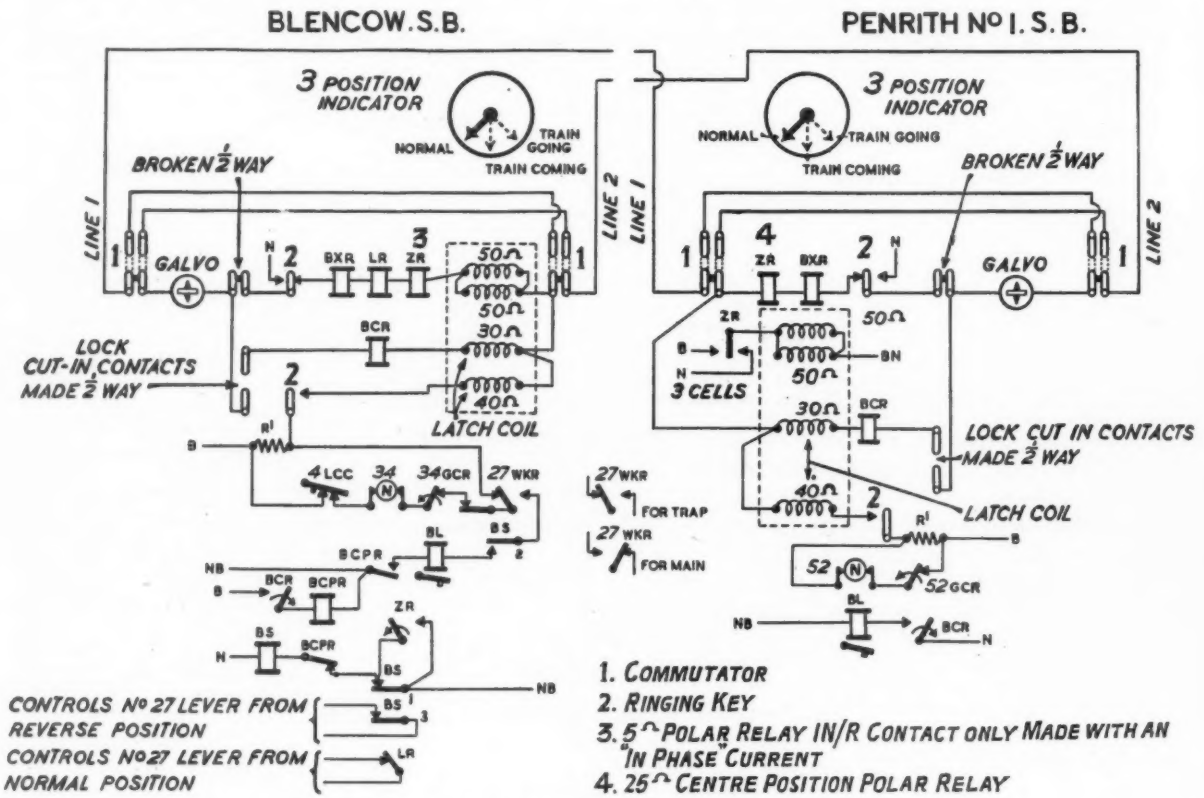


Fig. 2—Circuits designed to ensure proper control over point working

movement made in extracting the token at Blencow diverts the current to relay *BCR*, and the 30 ohm winding of the needle indicator. Energising *BCR* with the in-phase current causes it to close its contacts and pick up *BCPR*, which drops *BS*, thus holding No. 27 points reversed, and finally completing the circuit to the lock *BL*, enabling the token to be taken out.

On the token being inserted in the Penrith No. 1 instrument, the in-phase condition is restored and *ZR* re-energises *BS*, on the first signal from that place. If there is no occasion to reset No. 27 points to normal at Blencow, relay 27 *WKR* will still be reversed and resistance *R1* in circuit. The weak line signals sent from there under these circumstances not only operate the bell relay *BXR* at Penrith No. 1, but also the special centre position polarised relay *ZR* at that box, the tongue of which controls the energisation of the 50 ohm windings of the needle indicator, so ensuring correct indications being always given notwithstanding the line signals may not be of full strength.

When a train requires to proceed from Penrith No. 1 to Blencow points No. 27 must be normal and acting as trailable catchpoints. In that case relay 27 *WKR* is normal and —providing the other required " proving " is correct—the coming " position. The exchange of bell signals after a token has been taken out results in the indicators taking up the appropriate positions to show in which direction a train is travelling.

Track and Signalling in Java.—On main lines 82 lb. per yd. rails, soleplates, and hardwood sleepers on stone ballast is standard; on secondary lines lighter track of 70-lb. and 54-lb. rails is in use. The characteristics of the country are high plateaux crossed by deep ravines, and mountain peaks far apart. In consequence, there are few tunnels, four in the whole of Java only, but many bridges, most of which are steel lattice girder spans on high steel lattice piers and concrete and stone masonry abutments. Right hand running is the rule in the colony and the signalling system is based on that in use in Holland. Signals and points are interlocked, but there is little lock-and-block working except on the few double track sections. Station to station telegraph is used only for single line working. Special workings and alteration in the scheduled crossing places are notified to driver and guard in written instructions. An article and map relating to the railways of Java was published in our April 10 issue.

New 1,500-Volt Electric Freight Locomotive for the Piedmont & Northern Railway

Good tracking and easy riding qualities were the aims in this design

EARLY in 1941 the Piedmont & Northern Railway, which operates between Spartanburg and Greenwood in South Carolina, ordered from the General Electric Company (Schenectady) a 1,500-volt electric freight locomotive similar in appearance and operating characteristics to one built several years ago in the railway company's own shops. This order was placed in expectation of the increased industrial activity brought about by the national defence effort. The locomotive is carried on eight axles arranged as four 4-wheel motor bogies and classified as B-B+B-B; this wheel arrangement was dictated by the desire to duplicate existing traction motor equipment and to maintain individual axle-loading at less than 15½ (long) tons, and to handle trailing loads of 1,800 tons with a single locomotive unit.

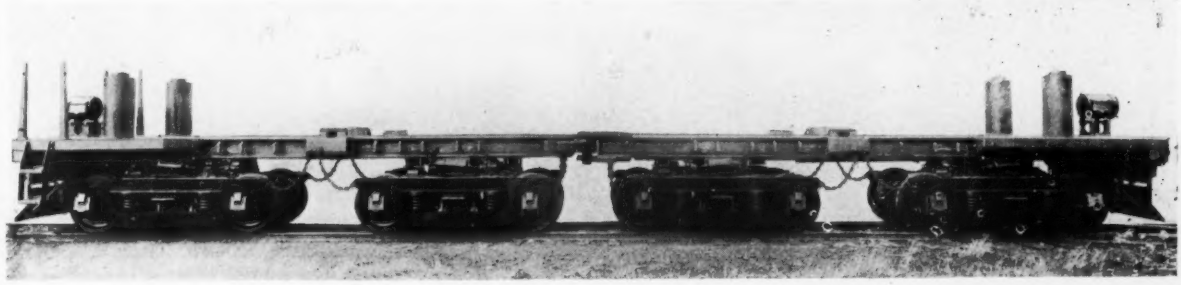
All-welded construction was employed throughout for the cab, sub-framing, and bogies, and the use of four non-articulated two-axle trucks necessitated the introduction of articulated sub-frames, with the cab structure and underframe independent of, but resting on, the sub-frames. The articulation between the two sub-frames through which the draught is taken is in the form of a pin and ball-and-socket joint; this feature permits operation of a sharp vertical curvature and the pin in conjunction with a sliding cab centreplate on one of the sub-frames facilitates negotiation of sharp horizontal curvatures. The lateral restraint due to horizontal rigidity of the joint in conjunction with swing-bolster bogies makes for an easy-riding locomotive with excellent tracking qualities. The locomotive is designed to negotiate curves with a minimum of 150 ft. radius. The principal dimensions, weights, and characteristics of the new engine are as follow:—

Length (inside knuckles)	63 ft. 4 in.
Wheelbase, total	52 ft. 6 in.
Wheelbase, rigid	8 ft.
Height over collectors, locked-down	16 ft. 2 in.
Diameter of driving wheels	36 in.
Track gauge	4 ft. 8½ in.
Total weight (all on drivers)	105 tons 7 cwt.
Weight per driving axle	13 tons 1 cwt.
Traction motors, number and type ...	8-GE-212-L
Gear ratio	68/18 = 3·77

Ratings (1,500 volts)—	One hour (FS—1)	Continuous (FS—1)
Tractive effort, lb. ...	49,000	34,500
Coeff. of adhesion, per cent.	20·7	14·6
Speed, m.p.h.	18·4	20·5
Horse power	2,400	1,885

The hollow cab underframing and sub-frames are connected by flexible intercommunicating ducts to form ventilating air passages between the cab-mounted motor-driven fans and the traction motors. Spring-loaded, sliding metal ducts convey the air from the cab sub-frames to each of the eight traction motors. Provision is made for maintaining adequate duct openings even though sharp track curvature results in con-

General view of 118-ton, 1,500-volt electric freight locomotive, Piedmont & Northern Railway



Sub-assembly of driving bogies and frames

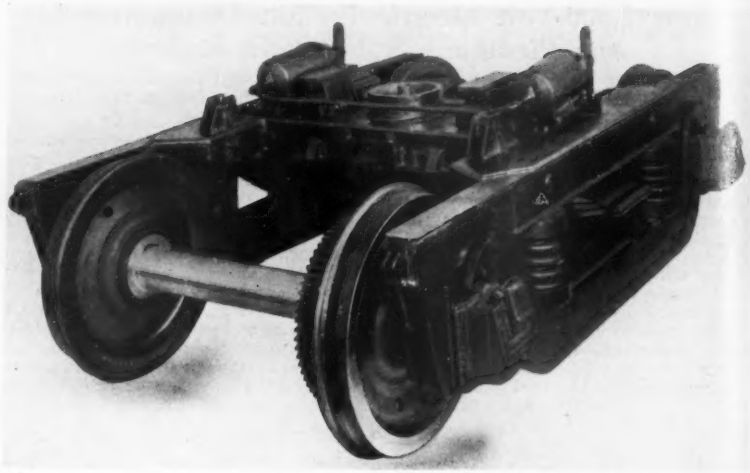
siderable horizontal angularity between the bogies and the sub-frames of the vehicle.

Control Equipment

The principal control apparatus consisting of contactors, fuses, cut-out switches, accelerating resistors, and so forth, is mounted within a centrally-located cab compartment consisting of three sub-compartments; the accelerating resistors are in two sub-compartments; one of each is adjacent to and at the ends of the main control compartment. Forced-air ventilation to the resistors is provided by tapping the compartments to the main ventilating air duct which runs directly underneath the control compartment and warm air from the resistor compartments is exhausted through roof ventilators. Access for inspection and maintenance of the equipment in the central compartment is through a door opening on one of the cab-side corridors through openings made by removing panels at the side of the compartments.

The control equipment is of the single-unit, electro-pneumatic type, arranged for non-automatic acceleration and for two-speed operation with one step of reduced field strength for each running combination. Each motor is wound for 750-volt operation, and the running combinations are four motors in series, two groups in parallel, and two motors in series, four groups in parallel. A 14-cell lead-acid battery charged under voltage-relay control in circuit with two series connected 750/1,500-volt blower motors furnishes control and lighting energy at a nominal 32 volts. A dead-man's release feature interconnects the master-controller, a foot-switch, and the air-brake system providing for interruption of power to the traction motors, and application of the brakes in the event of incapacitation of the operator. Wheel-slip indicators control audible signals at the operator's positions.

Current collection is through either of two slider pantographs, which are spring-raised, and lowered by air. A manually-operated pump furnishes air for initially unlocking one pantograph when normal air pressure is not available from the air-brake system. Protection for the electric equipment on 1,500-volt circuits is provided by two paralleled enclosed fuses of the expulsion type located between the pantograph selector switch and the main power switch. Individual motor groups are protected by overload relays controlling two series connected line-breaker contactors in each of the two main motor circuits.



One of the four swing-bolster motor bogies

Traction Motors

Eight GE-212-L 750/1,500-volt traction motors, duplicates of those proved by many years of service on the Piedmont & Northern Railway, are used. The motors, wound for 750 volts, are connected two in series, with two series of groups permanently connected in parallel. Each motor is force-ventilated with 1,200 c.f.m. of air, and is rated on a one-hour full-field basis at 300 h.p. The auxiliaries consist of two fans furnishing air for traction motor and accelerating resistor ventilation. Two 1,500-volt compressors give a total of 150 c.f.m. for the air-brake system The air-brake equipment is the conventional 14-EL type of Westinghouse Air Brake Company manufacture, utilising pedestal-type brake valves and interlocked with electric control to provide emergency brake application in connection with the "dead-man's" control system.

We are indebted to the British Thomson-Houston Co. Ltd., of Rugby, for the above particulars and the originals of illustrations.

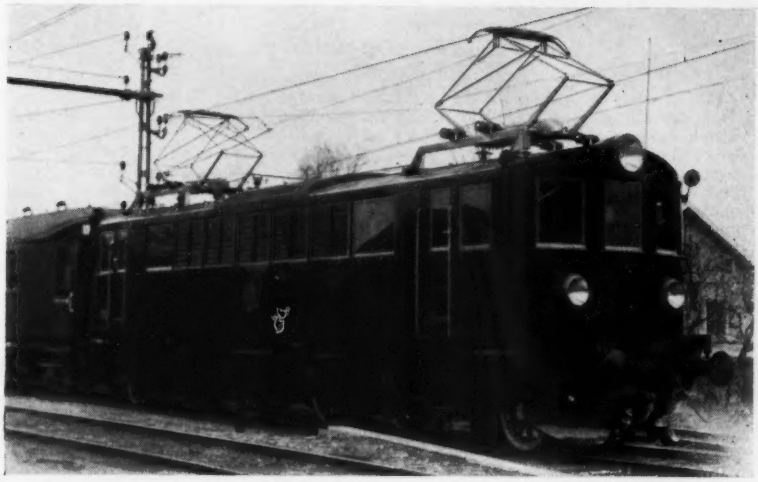
Electric locomotives of the Seebach-Wettingen line. The electrification of the Swiss Federal Railways system was developed as the result of the trials carried out on this line in 1904-1909

Electric Locomotives for Swedish State Railways

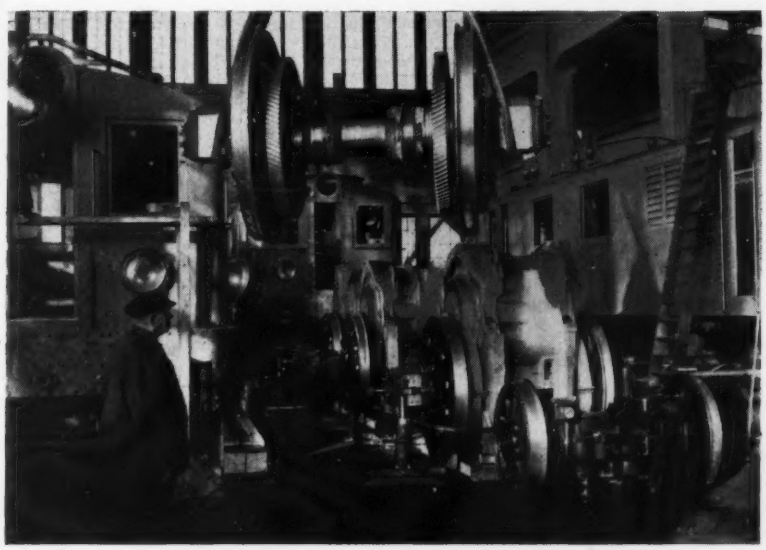
Side-rod drive gives place to quill drive

THE Swedish State Railways have just taken delivery from the Motala Engineering Works of the first of three electric locomotives. The other two are being provided by the Swedish Railway Equipment Company of Falun and the firm of Nydqvist & Holm, Trollhättan. The greater part of the electrical equipment is the work of the A.S.E.A. concern; it was designed under the closest co-operation between that firm, the railway authorities, and the three locomotive builders, in whose shops the machines have been erected.

The new locomotives differ in some important respects from those hitherto used on the Swedish State lines, which are operated on the single-phase system, $16\frac{2}{3}$ cycles, with a 16,000 volt contact line, and are capable of developing 3,600 h.p. and of hauling a 600-*tonne* train on the level at 120 km.p.h. (74·5 m.p.h.). The maximum speed is 135 km.p.h. (83·8 m.p.h.). The arrangement hitherto employed of mounting two motors in the body of the locomotive and employing side-rod drive has been abandoned in favour of individual quill drive on four axles, with leading and trailing pony trucks. The classification is therefore 1-Do-1, but the official railway designation is type F. An extremely gradual system of starting control has been applied, giving rapid, smooth, and comfortable acceleration without risk of slip, an improvement on the older locomotives in which the steps on the controller were rather widely separated. The Motala Engineering Works engine is now running trials and will then be placed in regular express service on the main lines. At present, however, the 90 km.p.h. (56 m.p.h.) speed limit is being retained. The accompanying photographs show the appearance and proportions of the new locomotives.

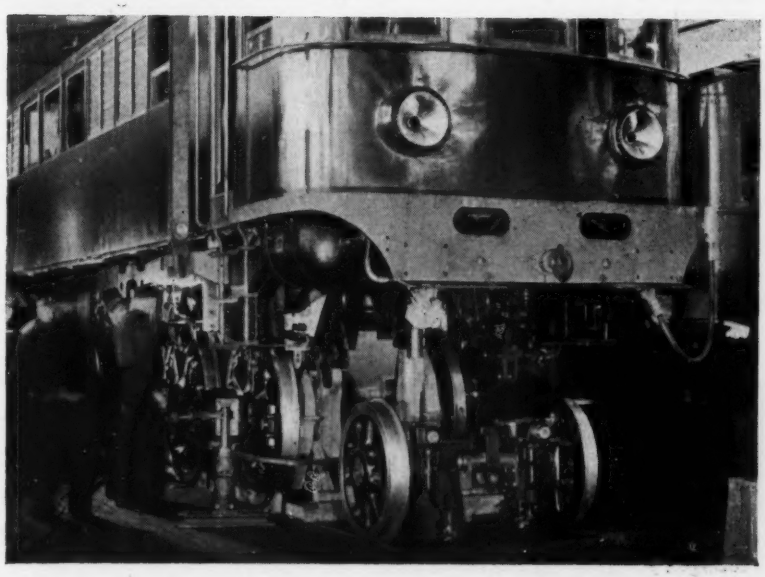


Above: General view of the new type F (1-Do-1) electric locomotive for Swedish State Railways



Left: Last pair of wheels with quill drive being placed in position

Below: Locomotive body being lowered over assembled wheels and motors



The Work of the Railway Clearing House

II—The Secretarial Department

QUITE early in the history of the Railway Clearing House, the companies which were parties thereto found the need to confer and discuss the many problems which necessarily arose from time to time, and the Clearing House provided the ideal neutral ground—with premises in the metropolis—where such problems could be ventilated and the remedies sought. In the early days all matters were discussed by the delegates appointed by the companies to the Clearing System, but after a time the subjects requiring consideration increased not only in number, but also in diversity of subject, so that it became difficult for one body to deal with them. It therefore became necessary to decentralise and to obtain the advice of chief departmental officers of the railway companies. Accordingly, in process of time, various conferences of officers were constituted, which met at the Clearing House and reported upon the numerous subjects affecting their respective departments.

The R.C.H. provides the needful secretariat for all the various and numerous conferences, and the activities of the Clearing House are divided into two broad categories, one the Secretarial Department and the other the Traffic Department. The work of the latter (which represents the primary purpose for which the R.C.H. was formed) was briefly described at page 676 of our June 19 issue, and the following notes outline the work of the Secretarial Department. The Secretaries of the Railway Clearing House, who have controlled the working of the whole establishment, are given hereunder, together with their periods of service :—

Kenneth Morison	1842-1861
Philip William Dawson	1861-1890
Harry Smart	1890-1907
Frank Mansfield	1908-1911
Harry Cuff Smart	1911-1919
Percy Howard Price	1919-1935
Ernest Edward Painter	1935-1939
Joseph Edmund Thomas Scanbra ...	1939 to date

The Secretarial Department is divided into three main Sub-Departments, known respectively as General, Expenditure, and Mileage. Under the first heading come primarily the conferences of the chief departmental officers of the railways ; the principal departments concerned are as follow :—

Accountants
Advertising and Public Relations
Docks Managers
Engineers (Civil)
" (Electrical)
" (Mechanical)
" (Signal & Telegraph)
Goods Managers
Mineral Managers
Solicitors
Stores Superintendents
Superintendents (Operating)
" (Passenger)

It will be seen that these cover every phase of railway working, whether operating, commercial, accountancy, or technical. In some cases a considerable volume of detail work is essential in connection with the discussion of the numerous subjects, and therefore subsidiary sub-committees have been appointed to prepare the necessary information and data on which decisions are reached by the chief officers. The minutes of meetings of all chief officers are submitted as a principle to the Conference of General Managers, who give final decisions thereon. Those affecting the working of the accountancy side of the Clearing House are kept in a separate series and submitted through the General Managers to the Clearing House Committee of Delegates. Modifications have been made in procedure to conform with war conditions.

In addition to railway conferences, large numbers of meetings are arranged as the need arises between the railway companies, Government Departments, trade organisations, and individual traders, to discuss transport matters of mutual interest, and probably most of the large trading organisations of the country have at some time or other attended meetings convened by the Clearing House. No question of vital importance relating to the railways of this country has ever developed without its having been considered by one or other of the established R.C.H. conferences. To give even a general idea of the matters discussed by these various conferences, or to indicate a fraction of what has been accomplished ,would occupy many volumes; it is possible here only to refer very briefly to one or two matters of particular interest.

Public safety is a question which has always been to the fore with the railway managements of this country, and it is through the medium of the Operating Superintendents' Conference that the Rules & Regulations observed by railway servants in the working of the railway are drawn up and issued. In connection with ascertaining which was the most suitable form of communicating in case of emergency with the train crew and guard, more than 200 different schemes were examined by the companies before the present device was adopted. Assurance of safe travel by rail also comes within the ambit of the Civil, Signal, and Electrical Engineers, who give consideration to questions relating to railway track, bridges, viaducts, curves, signals, automatic train control, and so forth. The high standard of safety of the British railways is due in no small measure to the R.C.H. conferences which for so many years have dealt with questions of this kind.

The cost of transport and the provision of adequate facilities have always been matters of prime importance to the public as well as to the railway companies. The trader not only needs to know the price of transporting his goods from warehouse to customer, but also that the same basis of charge will be applied to his trading competitors. This is accomplished by means of the Railway Classification, which is one of the many matters dealt with by the Goods and Passengers Managers through meetings at the Clearing House. All types of articles are classified, and scales of charges applicable to each class are fixed and published. New commodities are always finding their way into the market, and, in arriving at the classification of these, such factors as composition, bulk for weight, fragility, dangerous or obnoxious, value, and purpose of user, are given consideration, which involves regular meetings of railway experts in the particular aspects of the subjects concerned. The final decision as to classification is given by the Railway Rates Tribunal which sits periodically to deal with amendments to the Classification. The Clearing House prepares the submissions to the tribunal and issues the amending leaflets when the tribunal's decisions are known. The list of articles contained in the classification for goods train traffic in its early days was contained on a single sheet ; now that classification needs a book of more than 400 pages, apart from that for dangerous goods.

Packages made of fibreboard have been used freely as an outer packing for many commodities, but fibreboard from its nature is not a suitable form of packing for all types of goods. When fibreboard packing was introduced the methods of construction varied considerably ; some types of packages were made of such flimsy material that they afforded little protection to the goods packed therein, and it became apparent that unless fibreboard packages were manufactured to a reasonable standard (and then only for certain types of commodities) there would be much loss to the trading interests through damage during transit. In the Classification are set out standard specifications for various types of fibreboard packages ; these must be complied with if goods are to be accepted for transport at the risk of the carrier, and the Clearing House has the necessary appliances to test packages of this kind. In effect the Clearing House is a kind of servicing department where information and advice is given as to the suitability of fibreboard cases for the purposes for which they are intended.

On the passenger side an important and diverse subject dealt with by the Passenger Superintendents is the provision of special facilities for excursionists, pleasure parties, etc. In war conditions most facilities of this kind have been suspended in the national interest.

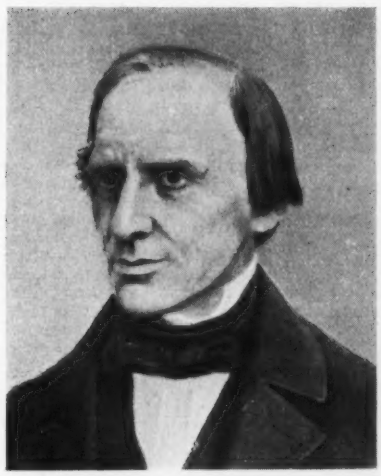
Much work has been entailed through changes in railway practice and charging brought about by new legislation. The various increases and decreases in rates and fares after the war of 1914-18, when the British railways were handed back by the Government, and the further revision of rates and the new Classification arising out of the Railways Act, 1921, were planned at Clearing House conferences. In such times of general revision the Clearing House has to work at extremely high pressure, and the companies use its services for the preparation of a large number of data. The Clearing House is also responsible for the issue of many railway publications, such as the Classification, Scales of Charges, and other similar documents which are available to the public as well as to the companies.

From very early days, the question of the standardisation of carriage and wagon stock has never ceased to engage the attention of the railway companies, both as regards their own vehicles and also the hundreds of thousands of privately-owned wagons which run over their lines. All specifications and drawings for the construction of standard types of vehicles are issued by the Clearing House (after they have been drawn up at meetings) under the direction of the Chief Mechanical Engineers.

Some sixty years ago, 100 meetings were held at the Clearing House in the course of a year. Twenty years later, the number had increased to about 400, and by 1939 the total of meetings approached the 2,000 mark. The Clearing House Secretary and staff of the Secretarial General Sub-Department undertake the secretarial work for the whole of these conferences, involving the preparation of agendas, and the compilation and issue of minutes and memoranda, together with a very considerable amount of correspondence. This necessitates the employment of a large staff, and those who undertake the secretarial duties at such conferences need special training in order to qualify them for recording impartially and accurately the decisions taken and the reasons therefor. Although the war has brought about some revision of the conference arrangements, the bulk of the work performed by this Sub-Department continues ; many of the problems are

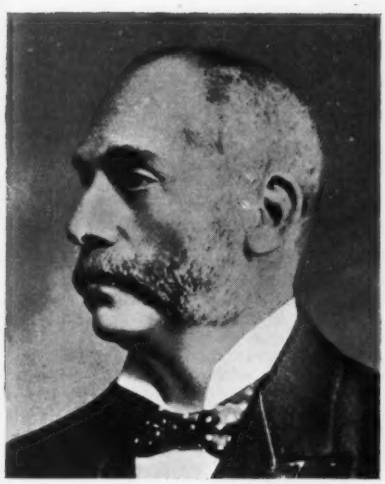
Secretaries of the Railway Clearing House

(Showing their periods of holding the secretaryship)



Kenneth Morison
1842-1861

Philip William Dawson
1861-1890



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1908-1911

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1911-1919

Percy Howard Price
1919-1935

Ernest Edward Painter
1935-1939

Joseph Edmund Thomas Stanbra
1939 *to date*

now different and need to be considered expeditiously, as well as thoroughly, by several special committees. The service of the Clearing House trained secretarial staff is used freely by the Railway Executive Committee for this purpose.

In addition to conferences, the General Sub-Department deals with many other items such as R.C.H. staff matters generally, and the maintenance and equipment of the establishment. There is also the work arising out of the Railway Freight Rebates Scheme; payment of compensation and cost of repairs in regard to some 580,000 privately-owned wagons requisitioned by the Government on the outbreak of war; and the preparation and signature of forms of agreement made between the respective railway companies and the traders where agreed charges are operative.

In the General Sub-Department, staff is also employed to prepare the necessary information respecting the chargeable distance from the various stations to points where the lines of two companies meet, and also the various maps and diagrams so freely used by the railway companies.

Expenditure Sub-Department

The staff in the Expenditure Sub-Department deals with all Clearing House accounts and arranges the necessary advices to the railway companies in respect of debits and credits as ascertained by the Traffic Department in regard to the carriage of passengers and goods over the systems of two or more companies. The pay of the R.C.H. staff is also undertaken by this Sub-Department.

Mileage Sub-Department

In the early days of railways, few long journeys could be made by rail without using more than one company's system, and, under the arrangements for through booking of passengers and merchandise, railway vehicles had to pass from the owning company's system to that of another company. The owning company needed to be recompensed for the use of its rolling stock while it was off its system, and also to be assured that such rolling stock was returned to the owner within reasonable time. The Clearing House therefore employed numbertakers, whose duties were to take records of various types of rail vehicles passing from one company's system to another. From these records the Mileage Sub-Department was able to calculate the sums due to the owners of stock for its use when passing off the owning company's system, and also to raise any demurrage charges for undue detention of stock by the non-owning company. The volume of such work has decreased considerably as a result of amalgamations, culminating in railway grouping under the Act of 1921.

A number of years ago the railway companies adopted a new method in regard to more common types of goods vehicles used for the carriage of merchandise, introducing what is known as the Common User arrangement. Under this method most types of goods vehicles were treated as for common use, and it was not therefore necessary for a wagon owned by company "A" passing on company "B" system to be worked back to company "A," provided company "B" handed over to company "A" an equivalent vehicle so as to ensure that the number of vehicles owned by the respective companies was maintained. Here again the records of the Clearing House numbertakers were used for balancing purposes. Following war-time modifications in records, about 250 numbertakers are stationed at various railway junctions where two systems meet.

Under war conditions still further improvement has been made by the setting-up of the Inter-Company Freight Rolling Stock Control. This control arranges the supply of rail vehicles according to proved needs. Rail goods vehicles, whether railway-owned or privately-owned, are thereby used to the utmost advantage, and empty haulage is reduced to the minimum.

The Moffat Tunnel and Its Ventilation

Methods used to abate the smoke nuisance

PIERCING the Rocky Mountains 50 miles north-west of Denver at a height of 9,195 ft. above sea-level (eastern portal), and with a length of 6·21 miles, the Moffat tunnel of the Denver & Salt Lake and Denver, Rio Grande & Western Railroads is the longest tunnel in the world through which steam traction is operated at the present day. At the time of its construction—it was opened in 1928—electric working was considered, but rejected as involving too great a capital cost, for at that period the tunnel served only the Denver & Salt Lake line, and the maximum traffic was not expected to exceed 16 train movements a day. Subsequently the D.R.G. & W. made a connection with the tunnel and on to its main line at Dotsero, and the traffic at once increased very appreciably, necessitating greatly improved ventilating arrangements to deal with the smoke nuisance.

Originally, some of the tunnel was timber lined, but now 18,431 ft. are lined with concrete, and the remainder, 14,374 ft., is granite rock covered with gunite. The tunnel is single track, has a maximum height of 22 ft. above rail level, a width of 16 ft., and a cross-sectional area varying from 310 to 340 sq. ft., except for short lengths at 450 sq. ft. There is an up-grade from each portal to a summit near the centre. The cost of construction was $18,000,000. The normal barometric reading at the elevation of the tunnel is 21·2 in. of mercury, and the ambient temperature varies during the year from 80° F. to —40° F., but the temperature in the tunnel is more or less constant throughout the year at about 58° F.

The theory of the tunnel ventilation was that train crews and passengers had not to be incommoded with the smoke from the hauling engine, but with the increase in traffic the residual smoke from preceding trains had to be taken into account. As the principal resistance to fan-blown air was the train, and not the friction of the tunnel walls, the piston effect of trains had to be eliminated as far as possible, and the simplest way of doing this was thought to be blowing air behind the trains. It was not feasible, because of power considerations, to blow air at such a rate that the products of combustion would be carried ahead of the engine, as some passenger trains cleared the tunnel in 8½ min., and no freight train took longer than 17 min. Moreover, a high ventilating pressure could not be adopted, or foul air might have been forced into the passenger coaches.

The ventilation of the tunnel is now effected by fans at the east end, and by means of a damper it is possible to blow air in at the east portal and exhaust it at the west end, or to exhaust air at the east end, causing a flow from west to east, as desired. In practice air is sent always in one direction through the tunnel; it is blown against eastbound trains as they have a rather steeper grade to surmount, and follows the westbound trains. This method also has the advantage that only clean air is taken through the fan and this prevents corrosion of the blades and damper. Originally the air movement was arranged to be always against the direction of train motion, but when trains alternated in direction at short intervals the smoke in the middle of the tunnel was shifted back and forward without being able to reach either exit.

The damper already mentioned is a tightly-fitting door of numerous plys of heavy canvas which can be raised and lowered at the eastern portal. This curtain normally is raised only long enough for a train to pass, and canvas material is used so that the locomotive will plough through it if it should fail to open at the right time. After the passage of a train hauled by a coal-burning steam locomotive about 30 min. are required to clear the tunnel of smoke with an air flow of 600,000 cu. ft. a min. and a fan h.p. of 530. Only 20 min. are needed for air to traverse the tunnel length, but something like a 50 per cent. increase in time is needed to clear the smoke out completely. For air to traverse the tunnel length in 15 min. would require a fan h.p. of 1,200. Consideration was given to a vertical shaft about half way along the tunnel to promote better ventilation, but the tunnel at this point is 2,000 ft. below the mountain. The cost of an 8-ft. dia. shaft would have been $175,000, and yet it was felt that with the variations in ambient temperature and pressure and the constant temperature in the tunnel, a shaft of at least 12 ft. dia. would be the minimum which could be effective; as this would have had an even higher cost, the project was eventually abandoned.

Saving Paper in Letterheads.—The Waste Paper Recovery Association Limited draws attention to the fact that not many business houses have made any real effort to reduce the size or quality of their letterheads. The majority is still using what is known as the quarto size, 10 in. × 8 in., instead of octavo size, 8 in. × 5 in., and using both sides of the paper. It is pointed out that as trading is so restricted, and the opening of new accounts improbable, all the business man needs on his notepaper is his name, his address, his telephone number, and if not indicated in the title, the nature of his business. This, it is suggested, need occupy no more than ¾ in. of space at the top of the letter. Paper is more valuable these days than prestige, and it is not considered good advertising to endeavour to maintain pre-war standards. The association adds that the reply sometimes given to this suggestion is: "Oh, this is pre-war stock"; a sad compliment this to the efficiency of the buyer who stocks a three-year supply of such things as letterheads.

Callenders Cable & Construction Co. Ltd.—The whole of this company's issued 4½ per cent. debenture stock (1902) is to be redeemed on November 30 next at 110 per cent. The amount now outstanding is £300,000.

RAILWAY NEWS SECTION

PERSONAL

L.N.E.R. Appointments

The L.N.E.R. announces the following appointments :—

Mr. C. H. Nicholson, District Docks Machinery Engineer, Hull, to be Docks Machinery Engineer, Hull, in succession to Mr. P. Liddell, retired.

Mr. J. L. Meadowcroft, Restaurant Car Superintendent (Great Northern and Great Eastern Sections), to act as Assistant to Hotels Superintendent, Southern Area, in succession to Mr. F. Armour, retired.

Mr. J. A. Jenkinson, District Superintendent, Manchester, to act as Liaison Officer, Port of Birkenhead.

Mr. A. R. Dunbar, District Superintendent, Leeds, to act as District Superintendent, Manchester, in succession to Mr. Jenkinson.

Mr. C. Hartman, Assistant District Superintendent, Nottingham, to act as District Superintendent, Leeds, in succession to Mr. Dunbar.

Mr. P. J. Turner, Assistant to District Superintendent, Manchester, to be Goods Agent, Guide Bridge, as from June 15, 1942.

Mr. J. W. Ogle, Divisional Superintendent, Karachi Division, who, as recorded in our issue of June 12, has been appointed to officiate as Chief Commercial Manager, North-Western Railway, India, commenced his service in the General Manager's Department of the former Great Northern Railway, but later he went to India.

Mr. Arthur Harris Pugh, District Permanent Way Inspector, Sudan Railways, has been awarded the M.B.E.

We regret to record the death, at the age of 72, of Mr. F. B. Wiegand, a well-known American signal engineer. He entered the Signal Department of the New York Central Railroad in 1891 and became Signal Supervisor of the Mohawk Division in 1903. From 1906 to 1913 he was Assistant Signal Engineer of the Lake Shore & Michigan Southern (later part of the New York Central), and then became Signal Engineer of the N.Y.C. lines west of Buffalo. In 1933, on the retirement of Mr. W. H. Elliott, the lines east of Buffalo came under his charge and later he was given jurisdiction over several of the N.Y.C. subsidiaries. He took an active part in the Signal Section of the Association of American Railroads and was its Chairman in 1922.

We regret to record the death of Mr. Andrew Murray, on June 13, at the age of 74. He was a Director of the Highland Transport Co. Ltd.

Sir Robert Elliott-Cooper, M.Inst.C.E., who died in February this year, left £76,858.

Mr. Henry Spurrier, Managing Director of Leyland Motors Limited, who died last March, left £65,559.

Mr. Alexander Maynard, who, as recorded in our June 5 issue, is to retire from the position of Chief Goods Manager, G.W.R., due to ill-health, on June 30 next, was born in 1882. He received his education on the Continent, principally at Dolhain and Liége. His commercial life commenced with a firm of London shipbrokers who, amongst other activities, operated a service between London and Cardiff, Swansea, and Llanelly, and he thus established an early contact with trade and transport requirements in South Wales. Mr. Maynard served in the South African War, and on his return joined the staff of C. Shaw Lovell & Sons, Ltd. shipping and forwarding agents, and gained experience throughout the country. Subsequently he travelled extensively in France, Belgium, Holland, Scandinavia, and Central Europe. He entered the Great Western Railway at the age of 27, as the company's agent at Nantes, and two years later, in 1911, he was transferred to Paddington to take charge of the Continental Department. In 1914 he was appointed Goods Agent at Taunton, and towards the end of 1915 became Assistant Goods Superintendent at Birmingham, where later he became Superintendent. In 1918 he returned to Paddington as Goods Superintendent and, during his tenure of this office, after close study of the traffic problems, he conceived the idea of a separate "empties" shed, which not only had beneficial results upon the working of this class of traffic, but facilitated the movement of the general merchandise dealt with through the station. Mr. Maynard set a very high standard at Paddington Goods Station, and those who worked with him there still recall the time with appreciation. In 1922 he was appointed Assistant to the Chief Goods Manager, in which capacity he also held the office of Development Agent, then a newly-created post. He did valuable work in connection with the special organisation created by the British railways to meet the establishment in 1923, by the Irish Free State, of an independent system of customs and excise duties. In 1924, he became Assistant Chief Goods Manager & Development Agent, and in 1931 he was appointed Chief Goods Manager. He was Chairman of the Goods Managers' Conference at the Railway Clearing House in 1932, and again in 1936. During Mr. Maynard's term of office there has been a drift of industry from east to west, which has resulted in the installation of many new works, involving private sidings and other developments essential to the movement of traffic and, since the outbreak of war, greater use has been made of the west coast ports, which has added to the problems of wagon supply and distribution. There have been also many difficulties to contend with arising from damage to the company's property by enemy action, and although his responsibilities thus have been greatly added to, he has taken a personal interest in each problem as it has arisen and has spared no effort towards a rapid solution.

Photo [*Navana*

Mr. Alexander Maynard

Chief Goods Manager, G.W.R., 1931-42

Colonel Harold Paton Mitchell, M.P., J.P., of Tulliallan Castle, Kincardine-on-Forth, a Director of the London & North Eastern Railway Company, has been made a Deputy Lieutenant for the County of Clackmannan.

Lord Hyndley, Controller-General, Ministry of Fuel & Power, has announced his resignation from the boards of the following companies:—Powell Duffryn Associated Collieries Limited; Powell Duffryn Steam Coal Co. Ltd.; Taff Merthyr Steam Coal Company; and Coal Distributors (South Wales) Limited.

Mr. E. J. Fox, Managing Director of the Stanton Iron Works Co. Ltd. for the past 25 years, is relinquishing his appointment and retiring from the board on June 30. He remains a Director of Stewarts and Lloyds Limited.

We regret to record the death in Toronto on June 10, at the age of 74, of Mr. W. N. Tilley, K.C., who had been a Director and Member of the Executive Committee of the Canadian Pacific Railway Company since December, 1924.

We regret to record the death, at the age of 66, of Mr. R. T. Durran, A.M.I.E.E. He was a Director of the Lima Light & Power Company, and of the Skefko Ball Bearing Co. Ltd., and was a

life member of the American Institute of Electrical Engineers. Sir T. Henry Penson, K.B.E., a Director of the Skefko Ball Bearing Co. Ltd., in an appreciation, recalls that he was a prominent figure in the international engineering world, in which he continued to take a live interest in spite of the ill-health from which latterly he had suffered.

Indian Railway Staff Changes

Mr. N. K. Sen, officiating Financial Adviser & Chief Accounts Officer, Bengal & Assam Railway, has been granted eight months' leave as from January 13.

On return from leave, Mr. Yakub Shah has been appointed to officiate as Financial Adviser & Chief Accounts Officer, B. & A.R., in place of Mr. Sen.

Mr. J. D. Antia has been appointed to officiate as Deputy Chief Accounts Officer, G.I.P.R., as from January 23.

The services of Mr. W. E. Gelson, Research Officer, Central Standards Office for Railways, have been placed at the disposal of the Supply Department, as from February 7.

Mr. H. W. Meakins has been appointed to officiate as Chief Operating Superintendent, B. & A.R.

Mr. I. T. St. C. Pringle, Deputy Chief Commercial Manager, B. & A.R., has been permitted to retire from Government service, as from February 20.

Khan Bahadur Q. Z. Hussain has been appointed to officiate as Deputy Chief Engineer, Chittagong, B. & A.R., as from February 13.

Mr. J. N. E. Nagle has been appointed to officiate as Deputy Chief Commercial Manager, B. & A.R., as from February 20.

Mr. L. P. Misra has been appointed to officiate as General Manager, B. & A.R.

Mr. O. T. Tewson

Appointed Divisional Solicitor, Manchester, L.M.S.R.

Mr. O. T. Tewson, Assistant Divisional Solicitor, Manchester, L.M.S.R., who, as recorded in our June 19 issue, has been appointed Divisional Solicitor, Manchester, in succession to the late Mr. W. O. Hickson, was born in 1907 and educated at Aldenham School. In 1926 Mr. Tewson was articled to Mr. J. C. Marquis, Divisional Solicitor, Manchester, L.M.S.R., and was admitted a solicitor in August, 1930. One month later he was appointed Solicitor Assistant in the Divisional Solicitor's Office, Manchester. In October, 1938, Mr. Tewson was appointed Assistant Divisional Solicitor, Manchester.

The Rt. Hon. Viscount Davidson, a Director of the Buenos Ayres Great Southern and the Buenos Ayres Western Railway Companies, with members of the delegation which welcomed him on his arrival at Buenos Aires on April 6

Left to Right: Major O. Loewenthal, General Manager, B.A.G.S.R. and B.A.W.R.; Mr. S. R. Robertson, Press Attaché to the British Embassy; Viscount Davidson; Mr. H. R. Hadow, Counsellor to the British Embassy; Sir William McCallum, Chairman, British Chamber of Commerce; Dr. G. E. Leguizamon, Chairman, Local Committees, B.A.G.S.R. and B.A.W.R.; Mr. R. Montgomery, Deputy General Manager & Chief Accountant, B.A.G.S.R. and B.A.W.R.; and Mr. H. N. Anderson, General Manager, Buenos Ayres Midland Railway

As a result of the recent retirement of Major Charles J. Murfitt, O.B.E., Joint General Manager of the East Kent Road Car Co. Ltd., the following changes have been made, to date from July 1. Mr. Alfred Baynton, who for a number of years has been Secretary & Joint General Manager, becomes General Manager. Mr. B. D. Stanley, Assistant Secretary, becomes Secretary; and Mr. S. H. Loxton, formerly Chief Assistant Engineer, Birmingham & Midland Motor Omnibus Co. Ltd., has been appointed Engineer. On the same date, Mr. F. W. Sellwood is to become Traffic Officer.

Institute of Transport

Amongst those elected to membership of the Institute of Transport is Mr. H. J. S. Young, Assistant to General Manager, Port of Bristol Authority; and amongst those elected associate members are: Mr. N. N. Bird, Manager, Bridgewater Department, Manchester Ship Canal Company; Mr. J. G. Milne, L.M.S.R., Glasgow; and Mr. S. E. Pepler, Assistant Chief Engineer, Pickfords Limited, London.

We regret to record the death in New York, on June 14, of Major Pierre Glover Jenks, President of the Pullman-Standard Car Export Corporation, a subsidiary of Pullman Incorporated.

Mr. E. G. Kingston, F.C.I.S., Secretary of the Bristol Tramways & Carriage Co. Ltd., has retired. He joined the company in 1898 and has been Secretary for the past 17 years. He is succeeded by Mr. R. E. Armstrong.

Mr. T. B. Keep, M.I.Mech.E., M.I.A.E., M.Inst.T., has been appointed Deputy Director-General of Production Services, at the Ministry of Supply. He was Managing Director of the Brush Electrical Engineering Co. Ltd., and Petters Limited.

Mr. C. E. Ayres, Operating Superintendent (Country Buses & Coaches), London Passenger Transport Board, seconded to the Ministry of War Transport, has been appointed Deputy Regional Transport Commissioner for Wales.

We regret to record the death on June 19, at the age of 68, of Mr. J. J. Lawton, who, after receiving his training with Kitson's, of Leeds, joined the firm of Messrs. Livesey & Henderson. On his retirement, due to ill-health, in 1937, he had been in their service for 30 years, and, since shortly after the war of 1914-19, he had been chief of the Drawing Office. Mr. Lawton was very well known in the locomotive industry; much of his work was in connection with South American railways.

We regret to record the death on June 14, in his 67th year, of Mr. George Lathan, M.P. for the Park Division of Sheffield. Mr. Lathan entered the service of the Midland & Great Northern Joint Railway as a clerk at Norwich in 1889. He became an active member of the Railway Clerks' Association, of which he was President 1908-1912, and Chief Assistant Secretary 1912-1937. During the existence of the National Wages Board for Railways from 1921 to 1934, Mr. Lathan regularly represented his union on that board.

TRANSPORT SERVICES AND THE WAR—145

Suspension of " Luggage in Advance "

The L.N.E.R. and L.M.S.R. have intimated that from June 20 to September 12 inclusive, luggage will not be accepted under the " Passengers' Luggage in Advance " arrangement for conveyance to or from the following places :—

(*a*) All Clyde coast piers served by railway steamers, including Millport and Arran ;
(*b*) All piers served by MacBrayne's steamers from Wemyss Bay ;
(*c*) Gourock, Wemyss Bay, Craigendoran, and Helensburgh ;
(*d*) All stations between Kilwinning and Portpatrick and between Kilwinning and Largs.

Passengers are reminded that the maximum weight of luggage which may be taken with them is 100 lb. for an adult and 50 lb. for a juvenile passenger.

Railway Cartage Services

Hundreds of railway motor vehicles have been rebuilt and reconditioned to keep them in active service. The fleet of railway cartage motors totals 11,450. There are also 10,000 railway horses. Enemy action has taken its toll of railway road vehicles. More than a thousand vehicles have been damaged or destroyed, and 85 horses have been killed and 83 injured. Reductions in railway cartage mileage have been effected by the curtailment of country lorry services ; the arrangement of deliveries on alternate days, or at less frequent intervals where traffic is light ; and by the pooling of collection & delivery services where overlapping occurred. Nowadays only one railway carts traffics in places where two or more railways formerly operated.

Johannesburg Trolleybuses for London

The first of the 18 trolleybuses orginally intended for Johannesburg, South Africa, went into London service on route 691 on June 15. It may be recalled that certain South African municipalities had uncompleted contracts in this country for trolleybuses, and that the London Passenger Transport Board has acquired some of them. In addition to the Johannesburg buses, 25 which were to have gone to Durban also have been acquired. The first of these began work in the Ilford area on November 22 last, and 21 are now in service. The South African buses are 8 ft. wide, or 6 in. wider than the maximum normally permitted in this country. The width of the gangway and seats is thereby increased slightly, and there is more room for the conductor to pass along the bus. Drop windows are fitted, in view of intended service in a hot climate. Illustrations of these trolleybuses appeared at page 657 of our issue dated December 19 & 26, 1941.

Civilian Air Raid Casualties in May

The Ministry of Home Security has announced the following figures of civilian casualties due to air raids on the United Kingdom during the month of May :—

Killed (or missing and believed killed)... 399
Injured and detained in hospital ... 425

	Men	Women	Under 16	Unclassified
Killed (or missing and believed killed)	170	155	48	26
Injured and detained in hospital ...	204	169	52	—

As already announced, the April figure of killed was 938, so that the total number of civilians killed in April and May is 1,337. This period covered the so-called Baedeker raids upon Bath, Exeter, Norwich, and York, as well as less concentrated bombing elsewhere. Members of the public are asked to note that the total number killed in all these raids is many times less than the figure attributed to single raids by rumours in different parts of the country, most of them remote from the scene of attack. The official figures are as accurate as it is possible to make them and are correct to within one or two per cent.

Fewer Stops for Urban Transport

As in the later stages of the war of 1914-19, many of the less important stopping places on urban tram and bus routes are being eliminated as an economy measure. Twenty-five years ago it was mainly trams that were affected, and the Americans coined the word " skip-stop " to designate the arrangement. So far we have heard of no comparable term this time, and indeed very little publicity has been given to the steps that have been taken. Nevertheless, some of the changes are quite extensive. Blackpool Corporation Transport, for example, eliminated about 85 stops on May 25, and Dublin abolished some stops on its remaining tram routes on June 1. Glasgow Corporation Transport Department has abolished 25 per cent. of the stopping places on its tram and bus system. On June 12 we recorded (at page 651) the recent changes in Germany which have affected such cities as Cologne (before the very heavy R.A.F. intervention), Düsseldorf, Essen, Duisburg, and Leipzig.

Daily Railway Operating Conferences

In addition to the normal daily operating conferences which take place on each of the British main-line railways, a daily Central Operating Conference has been introduced to obtain the best possible use of all available routes to meet the growing needs of national war production. These meetings of the Central Operating Conference take place every morning, including Sundays, by means of special telephones which link up the Chief Operating Officer of each of the four main-line railways at his own desk. Immediate decisions are reached involving railway operating over the whole country. Movements of trainloads of goods and thousands of wagons are allocated to the routes which give the best possible operating conditions, irrespective of the commercial or other individual interests. Actual operating conditions are discussed by the Chief Officers who are fully advised by their staffs of the latest position. If a particular route is over-taxed, arrangements are made for trains to be diverted to alternative lines

Speed Limits in Eire

The Secretary of the Department of Supplies in Eire issued on June 2 the Emergency Powers (No. 180) Order, 1942, with a view to preventing the excessive wear and tear on tyres caused by high speeds. This order restricts the speeds of all motor vehicles and motorcycles, fixing them as follow :—

Motorcycles, motorcars, and other motor vehicles of less than two tons unladen weight	30 m.p.h.
Single-deck buses and motor vehicles of more than two tons unladen weight...	25 m.p.h.
Double-deck buses	20 m.p.h.

Where lower speed limits are already laid down under the Road Traffic Act, 1933, such limits are in no cases raised by the present Order.

Further Travel Restrictions in Ireland

The Great Northern Railway (Ireland) has given notice that, as a result of existing conditions, the seating capacity of the necessarily curtailed train services has become taxed to such an extent that it is no longer possible to grant certain reduced fare facilities. Various of such concessions were therefore withdrawn on and from Monday, June 15.

There is, moreover, a possibility that railway travel may be further restricted by the introduction of a system of advanced booking, under which intending travellers will need to apply for tickets several days before the date of their journey. Applications in excess of the number for which provision has been made by the railway company would be refused, or granted for subsequent days.

More Trolleybuses for France

There were comparatively few trolleybus services in France before the outbreak of the present war, and in July, 1940, the whole fleet of trolleybuses in France aggregated only 180 vehicles. In view of the shortage of fuel oil, there is now a movement for the increased use of this type of vehicle. In the Paris region a scheme, approved on June 24, 1941, envisages 19 new trolleybus lines to be worked as extensions to the Métro. In

A picture taken last month in Paris, showing a modern French third class railway carriage reserved for the German occupation troops

view of copper shortage, contact wires will be of aluminium; standards will be of reinforced concrete. The normal type of trolleybus will have accommodation for 52 persons (including seating for 28 persons), and two side entrances will be provided. The driver will also act as conductor. Each bus will be equipped with a petrol-operated generator set to enable the vehicle to be worked to the nearest terminal point in case of current failure.

Block Transit Trains Across France

After the collapse of France, when goods traffic between Germany, on the one hand, and Spain and Portugal, on the other, through occupied and unoccupied France, was resumed on the basis of existing trade agreements, the Generalbetriebsleitung West of Essen undertook to control and direct the railway goods traffic from Germany, Luxembourg, and Alsace-Lorraine, and from other countries in transit through Germany, *via* occupied and unoccupied France to Spain, and in transit through Spain to Portugal and countries beyond. Permits are issued as follow :—

(1) for the transport through occupied France to Irun, for export to or through Spain. Wagons on this route use the German-French frontier station of Nouvel Avricourt (in German, Elfringen) on the Strasbourg-Sarrebourg-Nancy line ;

(2) for the transport through occupied and unoccupied France to Port Bou for export to Spain only. Such wagons use the German-French frontier station of Montreux Vieux (in German, Altmünsterol) on the Mulhouse-Belfort line.

Permits for the conveyance of consignments over other French-Spanish frontier stations are issued in exceptional cases only.

Authorised wagons are accumulated in certain stations, one of which is Essen, and formed into "block trains," which cross France sealed.

For loads from Spain and Portugal *via* Irun or Port Bou (and, in exceptional cases only, also *via* other French-Spanish frontier stations) to either Germany or through Germany to other countries, the General Representative of the Reichsbahn at Barcelona issues the permits, after having obtained authorisation in every individual case from the German Military Commander in France (Militärbefehlhaber in Frankreich).

The organisation of "block trains" is said to have become necessary to ease the position at the French-Spanish frontier stations, where all goods must be unloaded because of the break of gauge, and appliances are understood to be inadequate. The arrivals of the standard-gauge block trains at the frontier stations are timed to coincide with the arrivals of the corresponding broad-gauge block trains from Spain and Portugal.

German Holiday Travel

Before Whitsuntide the German press contained many appeals to the public not to travel between May 21 and 27. Germans were asked to postpone holidays until a time when the Reichsbahn was better able to cope with additional traffic. Typical appeals appeared in the *Berliner Lokal-Anzeiger* of May 15 and the *Hamburger Fremdenblatt* of May 20. The population of Breslau has been asked never to travel unnecessarily on Sundays. The crowds at the stations have been such that many have been left behind on the platforms, stated the *Breslauer Neueste Nachrichten* of May 9.

By a Decree issued on April 20 by the State-Secretary for Tourist Traffic, which came into force on May 1, accommodation in the holiday resorts is to be reserved in the first place for members of the Armed Forces, the SS, the police, the Reich Labour Service and other organisations connected with the Armed Forces such as the Organisation Todt, who are on leave from service in countries outside the Reich. The reservation of accommodation extends to their families. The following groups of persons have next claim on accommodation : Other members of the Armed Forces, civilians engaged on work of national importance (all with their families), and widows, parents, and children of men who have been killed in the war. Accommodation in health resorts is reserved for persons with a medical certificate stating that they must stay there for reasons of health. No person may stay longer than three weeks in a holiday or health resort, unless it is certified as necessary for the completion of a cure. A reservation for a person in the second category must be cancelled in favour of any person in the first category who makes an application for it 14 days or more before the date for which the reservation is made. Accommodation which has not been booked by persons in the first or second category 14 days in advance may be booked by any other person. As before, certain classes of Government evacuees are exempted from these regulations. In contrast to the Decree of November 26, 1941, this Decree does not prohibit members of the general public who are not in the favoured categories from staying in holiday resorts, but they have a claim only upon unwanted accommodation. Earlier details of these travel and holiday restrictions were given at page 534 of our May 1 issue.

Interests of Serving South African Railwaymen

The interests of employees of the South African Railways & Harbours Administration now serving in North Africa and elsewhere with the Union Forces are being fully protected. Mr. C. F. Sturrock, the Minister of Railways & Harbours, announced in Pretoria on June 9 that the promotion of railway servants would continue while they were on active service. A large new railway training centre was being established in South Africa which would provide, *inter alia*, refresher courses for returned Railwaymen. The Minister also announced that many millions of pounds are being set aside for a railway building programme embracing projects intended to provide returned soldiers with skilled and unskilled work.

Seat Reservation in South Africa

As it is no longer possible for the South African Railways to duplicate passenger trains to Johannesburg and Cape Town from Bulawayo, a much stricter control of seat reservations has now been imposed in Rhodesia. Intending passengers to the south must now ascertain, before they purchase their tickets, whether they can be booked for the trains on which they desire to travel. This means that at stations north and east of Bulawayo the local stationmasters have to communicate with the seat reservation office at Bulawayo before accepting passengers for the Union. Trains leaving Bulawayo for the south are frequently booked up several days in advance, and a similar position occurs on the return trains, particularly from Johannesburg.

Withdrawal of Excursion Facilities in Rhodesia

In order that all available equipment might be concentrated on transport essential to the war effort, the issue of seasonal, general, and party-of-four excursion tickets was suspended by the Rhodesia Railways from May 1. The withdrawal of excursion fares and the elimination of special trains at holiday periods will enable the railways to maintain the free movement of goods traffic. The Rhodesia residents concession fare (single fare for the return journey over the Rhodesia Railways when proceeding to Beira or the Union for a holiday), and Military and similar concession fares, are unaffected by the excursion restrictions.

The cheap rates charged on motorcars and motorcycles accompanying passengers travelling by train were also withdrawn over the Rhodesia Railways, as well as the South African Railways, as a temporary measure for the duration of the war, on June 1. These facilities were originally introduced to encourage to travel by train holiday-makers taking their cars away with them.

New York "El" for Salvage

Four miles of the famous elevated railway structure of New York City, many sections of which have already been closed to traffic, are to be dismantled immediately in order to salvage the metal for war industries.

Increasing U.S.A. Railway Stores

Figures which have recently been issued in the U.S.A. show that the total stocks of railway stores and fuel on January 1 of the present year were valued at more than $127 million above the figure for January 1, 1941, and nearly $135 million more than January 1, 1940. This increase of 37 per cent. during the calendar year 1941 brought the stocks of the railway companies to a higher level than in any of the last ten years, but the total figure was still some $11 million below that for 1930, and very substantially below the figures during and immediately after the last war. As was the case in Great Britain in the months before the present war began, the American railways took the opportunity of the period of crisis which occupied eleven out of the twelve months of 1941 in the U.S.A. to strengthen their transport resources. From the following table of materials and supplies on hand it will be noticed that a peak was reached on January 1, 1921, with over $767 million. The American railways were returned to private operation after the period of Federal control at the end of March, 1920.

MATERIALS AND SUPPLIES ON HAND, U.S.A. RAILWAYS

(Including Classes I, II, and III, and shunting and terminal railways)

Date		Amount	+ or −
July 1, 1911	...	$244,932,000	—
July 1, 1912	...	246,790,000	+ 1,858,000
July 1, 1913	...	300,601,000	+ 53,811,000
July 1, 1914	...	278,940,000	− 21,661,000
July 1, 1915	...	248,888,000	− 30,052,000
Jan. 1, 1917	...	333,361,000	+ 84,473,000
Jan. 1, 1918	...	514,051,000	+180,690,000
Jan. 1, 1919	...	641,759,000	+127,708,000
Jan. 1, 1920	...	608,527,000	− 33,232,000
Jan. 1, 1921	...	767,267,000	+158,740,000
Jan. 1, 1922	...	676,125,000	− 91,142,000
Jan. 1, 1923	...	556,260,000	−119,865,000
Jan. 1, 1924	...	693,078,000	+136,818,000
Jan. 1, 1925	...	569,690,000	−123,388,000
Jan. 1, 1926	...	535,126,000	− 34,564,000
Jan. 1, 1927	...	561,007,000	+ 25,881,000
Jan. 1, 1928	...	532,063,000	− 28,944,000
Jan. 1, 1929	...	478,625,000	− 53,438,000
Jan. 1, 1930	...	477,051,000	− 1,574,000
Jan. 1, 1931	...	437,375,000	− 39,676,000
Jan. 1, 1932	...	379,992,000	− 57,383,000
Jan. 1, 1933	...	321,595,000	− 58,397,000
Jan. 1, 1934	...	296,069,000	− 25,526,000
Jan. 1, 1935	...	302,346,000	+ 6,277,000
Jan. 1, 1936	...	284,560,000	− 17,786,000
Jan. 1, 1937	...	311,738,000	+ 27,178,000
Jan. 1, 1938	...	390,371,000	+ 79,303,000
Jan. 1, 1939	...	322,161,000	− 68,210,000
Jan. 1, 1940	...	331,716,000	+ 9,555,000
Jan. 1, 1941	...	339,156,000	+ 7,440,000
Jan. 1, 1942	...	466,170,000	+127 014,000

It may be added that, of 120 railways reporting detailed inventory and consumption figures, only six recorded less fuel on hand on January 1 of the present year than on January 1, 1941.

"Mariners' Meeting" at Goole

Goole's annual "Captains' Blue Water Evening" has been broadcast on more than one occasion. Latterly the feature has been designated "Mariners' Meeting" by the B.B.C. The latest of this popular series, the 19th meeting, which was broadcast on June 8, naturally included many L.M.S.R. personnel.

Captain J. Barker, Marine Superintendent (L.M.S.R. Goole Steamships) was in the Chair, supported by Commander Clementson, R.N.R. The guest of the evening was Captain J. W. Harris, Marine Manager, of the L.M.S.R., who made a speech opening the proceedings. In the course of his talk, he said :—

"Our Mariners' Meeting of last year was held under most trying circumstances, for only a few days previously this port had suffered the loss of a number of your friends and relatives at sea. It said much for those of you who attended that in spite of your grief you put up a good show and expressed to your listening friends all over the country the true spirit of the Merchant Navy. Much has happened in that Service since we met a year ago. Your home port ships are giving excellent service in waters around our coasts and also further afield. I can assure you that the work which they and the ships' companies are doing is of the utmost importance to the nation.

"From one who is known to you, who likes to feel and does feel that he is one of you and certainly one with you, you will expect a word about the Merchant Navy generally. Times have changed, as have conditions of life at sea since I joined my first windjammer some 47 years ago, but not the boys or the men who have held high the torch passed to them by my contemporaries and myself. There was a time when many of us felt that the passing of the windjammer would seriously affect the seamanlike qualities and efficiency of the youth of the steam era. We were wrong, and I for one frankly admit it.

"The life which you lead remains still a lonely life, every hour demanding watchfulness and care, calling forth initiative, courage, skill, prompt action, caution and daring, to an extent unsurpassed, nay, unequalled, in peace or war, in any profession. Yes, a very lonely life, both for you and those you leave behind, but how very necessary for our country's existence at all times.

"How much all this is appreciated by the Government and the responsible Minister is apparent in the ever-improving conditions of your life on board ship and, what pleases the heart of the seaman—and his sweetheart—longer leave in port. You will believe your own Chief Marine Superintendent when he tells you we have every reason to be well pleased. The nation, like every nice girl, loves a sailor, and I pray this love, this time, shall be lasting."

L.N.E.R. Records Photographed

Shortly after the outbreak of war L.N.E.R. officials realised that they had thousands of documents, rate books, engineering plans, agreements, and the like that were either irreplaceable or replaceable only at great cost in time and money. The cities where these were kept might be bombed and the valuable records destroyed. Evacuation, as in case of civilians, was the first thought, but it was considered that the odd bomb or shower of incendiaries might do, in some rural retreat, the damage to prevent which the documents had been moved. Further, a certain accessibility to these documents had to be preserved.

Recourse was made to photography and since those early days of the war, ledgers, rate books, and parchments have been brought out, dusted up, posed and snapped, and now all the books of major importance on the L.N.E.R. have been turned into a permanent record which can be stored with complete security in a very small space. So well has this work been done that although a large manuscript covered with small copper-plate handwriting has been photographed on a film only 1¼ in. by 1 in. the detail is clear, and needs only enlargement to bring it back to the original size when required. In a number of instances this has already been done.

The Railways of Eire in 1940

We are indebted to the Ministry for Industry & Commerce, Eire, for official particulars of the railways operating in that country in respect of the calendar year 1940. These are reproduced in the accompanying table. It will be noticed that the statistics of the undertaking of the Great Southern Railways Company include the Irish portion of the Fishguard & Rosslare Railways & Harbours Company, for the working of which the Great Southern Railways Company is responsible. The G.S.R. is the only railway situated wholly in Eire.

EIRE RAILWAY STATISTICS (OFFICIAL), 1940

	Great Southern Railways (*a*)	Railways partly in Eire: Great Northern Railway	Railways partly in Eire: Other railways
Capital—			
Authorised	£13,895,001	£9,755,703	£1,683,932
Created	13,069,631	9,755,703	1,541,754
Issued (including nominal additions or deductions)	12,984,412	9,260,970	1,440,518
Receipts and expenditure on capital account—			
Receipts to December 31, 1940	14,793,090	9,400,948	2,602,431
Expenditure to December 31, 1940	31,503,343	9,894,429	2,587,108
Revenue receipts and expenditure (railways and ancillary businesses)—			
Gross receipts	4,568,604	1,598,453	178,211
Expenditure	4,235,654	1,483,467	188,603
Net receipts	£332,950	£114,986	*Dr.* 10,392
Total net income	£361,044	£150,671	£2,651
Appropriation from amount received under Irish Railways (Settlement of Claims) Act, 1921, reserves, etc.	£7,701	22,487	—
Mileage (operating)—			
First track	1,923	543	225
Total track (including sidings)	2,493	825	247
Rolling stock—			
Locomotives	501	191	38
Coaching vehicles	1,584	563	104
Rail motor cars	7	11	15
Electric	8	10 (*b*)	—
Freight vehicles	11,797	5,460	789
Service vehicles	1,062	497	34
Train mileage—			
Revenue, coaching	5,606,679	3,171,417	480,758
Revenue, freight	3,506,469	921,209	198,958
Shunting	1,843,888	891,494	103,782
Total engine miles	11,448,922	5,215,488	755,186
Number of passengers—			
First class	239,984	55,511	352
Second class	—	114,839	265
Third class	6,239,266	5,157,938	487,169
Workmen (single journeys)	—	283,174	861
Total (exclusive of season tickets)	6,479,250	5,611,462	488,647
Season tickets (equivalent annual tickets)—			
First class	658	119	—
Second class	—	1,159	—
Third class	6,342	5,207	137
Total	7,000	6,485	137
Freight traffic tonnage—			
General merchandise	1,675,965	834,121	154,135
Coal, coke, and patent fuel	476,466	141,896	26,970
Other minerals	483,786	97,535	14,453
Total (excluding livestock tonnage)	2,636,217	1,073,552	195,558
Livestock	358,166	175,184	—
Head of livestock	1,341,170	858,483	138,765

(*a*) Including Irish portion of Fishguard & Rosslare Railways & Harbours Company's undertaking for the working of which the Great Southern Railways Company is responsible

(*b*) Howth tramway vehicles

RAILWAY AND OTHER MEETINGS

British Electric Traction Co. Ltd.

The ordinary general meeting of the British Electric Traction Co. Ltd. was held on Friday, June 19, at Winchester House, Old Broad Street, London, E.C. Mr. Richard J. Howley, C.B.E., Chairman of the company, presided.

The Secretary (Mr. R. P. Beddow) having read the notice convening the meeting and the report of the auditors,

The Chairman said that before commencing the general business of the meeting, he had to report with deep regret the death of Mr. J. S. Austen, which occurred in January last. Mr. Austen joined the board in 1920 and became Chairman during the same year. The period of Mr. Austen's chairmanship was one of practically continuous expansion and development, which was illustrated by the growth in gross revenue from £264,773 in 1920-21 to £767,588 in 1941-42. It was always Mr. Austen's wish that the stockholders should recover the capital written off in the capital reduction which took place in 1915, and it was a fitting tribute to him to record that compared with the net sum of £908,372 by which the capital was reduced in 1915, there had been issued to stockholders a total of £783,752 deferred ordinary stock fully paid up out of undistributed profits.

The gross revenue for the past year amounted to £767,588 which again constituted a record and represented an increase of £19,036 over the previous year. On the expenditure side of the profit and loss account the only item calling for comment was a charge of £105,750 for income tax and provision for excess profits tax. This amount was some £24,000 greater than the corresponding charge in the preceding year.

The shareholders of Tilling & British Automobile Traction Limited had lately received a circular letter concerning a scheme for the reconstruction of the company and for the transfer of the company's assets to two new companies to be formed. The company in its present form was the result of an amalgamation of bus interests acquired from the British Electric Traction Co. Ltd. and Thomas Tilling Limited at a time when competition between bus undertakings had not been regulated. The businesses which were transferred did not embrace all the interests of the parent companies. Each, in addition, administered a number of important companies providing passenger road services. The activities of the provincial companies had grown very considerably in recent years, and the directors of the two parent companies had come to the conclusion that greater efficiency would be attained if the business of Tilling & British Automobile Traction Limited was divided into two parts and direct administration of each part was substituted for joint administration of the whole.

The proposals provided for the formation of two companies, namely, B.E.T. Omnibus Services Limited and Tilling Motor Services Limited; the former would be controlled by the British Electric Traction Co. Ltd. and the latter by Thomas Tilling Limited. Each company when the scheme was completed would have acquired the whole of Tilling & British Automobile Traction Limited's holdings of ordinary shares in approximately one-half of the bus companies in that company's group, together with—as nearly as may be—one half of the remaining assets of that company.

Tilling & British Automobile Traction Limited would be liquidated and shareholders would receive for each share of £1 two 10s. shares of the same category—one in each of the two new companies. Thus, the combined holdings of each shareholder in the two companies would correspond in total to the same nominal amount as his present holding and be of corresponding class or classes, and his new holdings would represent the same proportion of the total assets as at present. The scheme was well advanced and as soon as the necessary legal and other formalities had been complied with, full details would be submitted to the shareholders of Tilling & British Automobile Traction Limited.

As might be expected, the road transport and electricity supply companies in which the company was so largely interested had been busily engaged. The organisation had proved its usefulness under present difficult conditions, and had shown that group control of locally managed public utility undertakings under skilled direction was probably the most efficient and cheapest way of providing such services.

In the House of Lords on Wednesday Lord Reith expressed the view that he would rather have private enterprise than nationalisation, if nationalisation meant the taking over of public services by Government departments. He suggested that a national transport corporation should be set up to cover railways, road transport, canals, coast-wise shipping, and internal air services. It might be that the setting up of public boards as suggested to operate transport and public services was the answer to the desire of some leading politicians to nationalise services of this kind. It might be a way out of the danger which they appreciated would arise to our public economy under nationalisation. He (the chairman) at any rate was not convinced that large unwieldy boards would be either efficient or desirable in the national interest. In the first place, where was to be found a head to direct nation-wide businesses of this kind? Even if one were found, the cost of administration of such businesses was bound to be very heavy. Secondly, could anyone conceive that politicians would allow a corporation of this kind to function on business lines without interference? Thirdly, local conditions would be swamped in these large bodies and the particular requirements of any district would receive but scant attention. And lastly, investors would be cautious of providing funds after the experience of the "C" stockholders in London.

A good deal of publicity had been given recently to the use of producer gas in the engines of buses. Buses and other vehicles could be and were being run on producer gas, and B.E.T. transport companies were preparing to use this form of fuel in a number of their engines as a wartime measure. The public would not like the changeover. A loss of 30 per cent. to 50 per in power would mean a slower average speed. This would have many repercussions. A longer time would have to be allowed for a journey and more vehicles would be required to move the same number of passengers. These were serious drawbacks which were bound to affect the efficiency of important services—especially in hilly districts and on routes where heavy loading and frequent stops called for a high duty from the power unit.

The report and accounts were adopted.

Tillings Association

In July, 1931, Thomas Tilling Limited was instrumental in forming a voluntary organisation known as Tillings & Associated Companies Negotiating Committee. At first its primary object was the bulk purchase of vehicles and supplies on behalf of its members, and the following is the list of original members:—

Daimler Hire Limited
*Eastern Counties Omnibus Co. Ltd.
Eastern National Omnibus Co. Ltd.
Ford Limited
*Hants & Dorset Motor Services Limited
National Omnibus & Transport Co. Ltd.
*North Western Road Car Co. Ltd.
E. W. Rudd Limited
Southern National Omnibus Co. Ltd.
Thomas Tilling Limited
*United Automobile Services Limited
United Counties Omnibus & Road Transport Co. Ltd.
Western National Omnibus Co. Ltd.
*West Yorkshire Road Car Co. Ltd.

The organisation was extended in January, 1933, by which time the following additional companies had become members:—

Southern Vectis Omnibus Co. Ltd.
*Wilts & Dorset Motor Services Limited
H.M.S. Catherwood Limited
Bristol Tramways & Carriage Co. Ltd.

Those companies in the foregoing lists which are indicated by an asterisk (*) are associates of Tilling & British Automobile Traction Limited.

Subsequently this committee was constituted into Tillings Association, and its objects were widened to include many similar functions to those of the British Electrical Federation (which formed the subject of an article at page 689 of our issue of October 22, 1937).

Within the past few days, in accordance with modern practice, Tillings Association has been registered as a company limited by guarantee, without share capital. Its objects include the protection of the interests of companies associated with Thomas Tilling Limited; the promotion of collaboration in management; the conduct of collective bargaining and making contracts for the supply of commodities used in the businesses of the member companies; and the securing by all constitutional means of the removal or alteration of vexatious and repressive restrictions on the transport industry, and the promotion or opposition of Bills in Parliament. The following is the list of subscribers:—

Sir J. Frederick Heaton, Chairman, Thomas Tilling Limited
F. P. Arnold, Director, Brighton, Hove & District Omnibus Co. Ltd.
F. J. Chapple, General Manager, Bristol Tramways & Carriage Co. Ltd.
J. H. Martin, General Manager, Caledonian Omnibus Co. Ltd.
R. S. John, Director, Daimler Hire Limited
W. Bramham, General Manager, Eastern Coach Works Limited
J. Worssam, General Manager, Eastern Counties Omnibus Co. Ltd.
C. H. S. Pickett, General Manager, Eastern National Omnibus Co. Ltd.
H. G. R. Lambert, General Manager, East Midland Motor Services Limited
S. Kennedy, Director, Ford Limited
W. W. Graham, General Manager, Hants & Dorset Motor Services Limited
G. Cardwell, Director, National Omnibus & Transport Co. Ltd.
J. W. Womar, General Manager, North Western Road Car Co. Ltd.
W. Giles, Director, E. W. Rudd Limited
P. G. Stone Clark, Director, Southern National Omnibus Co. Ltd.
W. A. Budd, General Manager, Southern Vectis Omnibus Co. Ltd.
H. J. Starkie, Director, A. Stone & Sons Ltd.
Arthur G. Dennis, Director, Stratstone Limited
T. Graham Homer, General Manager, Thames Valley Traction Co. Ltd.
A. T. Evans, General Manager, United Automobile Services Limited
J. H. Mills, General Manager, United Counties Omnibus Co. Ltd.
G. H. Napthine, General Manager, Westcliff-on-Sea Motor Services Limited
B. V. Smith, General Manager, Western National Omnibus Co. Ltd.
J. C. Dean, General Manager, West Yorkshire Road Car Co. Ltd.
R. I. H. Longman, Director, Wilts & Dorset Motor Services Limited

PARLIAMENTARY NOTES

National Transport Corporation

In the House of Lords, on June 17, Lord Reith invited attention to the public corporation form of constitution, control, and management of public services—public services now either under private ownership or conducted directly by government, local or national. In private ownership—and he would rather have private ownership than nationalisation, if nationalisation meant the conduct of public services by Government Department—there was often (in the railways, for instance) a high ideal of public service, but their first obligation was to shareholders. It was increasingly difficult to serve God and Mammon, and the position of directors and managers was more and more invidious, with their ideals of public service on the one hand and, on the other, the hungry but quite natural expectation of the shareholders. Postal service, telegraphs, telephones and wireless services now under the Post Office, highly efficient to-day because of the extreme competence of the civil servant Director-General, would be notably more so if they were not a Government department subject to Government methods of financial accounting and control.

He suggested a national transport corporation covering railways, road transport, canals, coast-wise shipping, and internal air services; the railways should be brought under unified management and become part of the corporation. Railways were in a peculiarly difficult position to-day on both the railway side and the Government side; there was power without responsibility and there was responsibility without power. Equitable treatment for shareholders should be assumed and that did not mean necessarily taking current Stock Exchange figures as true values.

It is widely held that the railways would not pass out of Government control. If he were a railway director, faced with a real and growing demand for some change, he would be sure that railway affairs were rationalised and ordered by railway men rather than by politicians and civil servants. Obviously it was wrong to do that with the railways, which provided and maintained their own roads, and do nothing about road transport; road transport should be part of this corporation and under its direction and control. That did not necessarily mean that the corporation would amalgamate all the road hauliers and all road passenger services into one and make them a department. It would direct and control them, and have the right of acquisition. Similarly with canals, coast-wise shipping, and internal air services. One result of that would be that a customer with goods to be carried would be given rates according to speed and other considerations, but would not himself determine the system on which or by which his goods were carried.

Duties and Responsibilities

In the public corporation system owned and established by the State, with the duties and responsibilities defined by the state in Charter and Statute, with Parliament consulted on policy, there should be the same freedom as in commercial undertakings, Parliamentary control should be limited and, as it were, remote. Public services, if no longer answerable to shareholders at annual meetings, would still come under the continuous and intensive effect of public opinion voiced in Parliament and elsewhere.

He would like to say a word on leadership because some still said that we did not breed for it, which was true, and often discouraged it when it emerged. Where were the men to be found to carry such enormous responsibilities? They could be found, but two things were needed. First, they had to be institutionalised, meaning that they had to be given the right constitutional setting in which to work. Secondly, they had to be trusted. If conforming to, and at the same time taking command of, the inevitable tendency of the times, Parliament and public imposed on these key men the ideal of conscious social purpose, encouraging it and supporting it where it existed by institutions that fortified as well as controlled, then the guardians guarded themselves. But governors and managers had to be permitted to govern and manage corporations, and key men had to be trusted.

"New Form of Syndicalism"

Lord Strabolgi said that the sort of organisation for controlling our great vital national services which Lord Reith suggested was really a new form of syndicalism. He did not think that the public would tolerate it. He agreed with Lord Reith, in what he said about the need of a new leadership. The Labour Party supported Lord Reith in his contention that plans should be made now. Lord Reith had not mentioned overseas transport. In the future there would be great difficulties in overseas transport. Overseas passenger transport in the future was bound to be shared between civil aviation and the passenger lines. There would be great competition between the passenger aeroplanes and the liners not only in the matter of the Atlantic crossing, but also in the Pacific. It was very difficult to see how civil aviation after the war could be handed back to unrestricted private enterprise. If a Government corporation managed external civil aviation, how could that be asked to compete with passenger-liner companies under private ownership?

Lord Brabazon of Tara said that it was remarkable that, while some people were drifting towards the "corporation" idea of ownership, some extreme Socialists were drifting away from nationalisation as a general political idea. He had been brought up to think that competition was a healthy thing in industry, but he doubted whether competition in transport was a good thing at all. If it had not been for the early pooling arrangement, the tubes of London would have been bankrupt. Was the London Passenger Transport Board looked on to-day as a great nationalisation scheme? It was public ownership. He did not believe that the traffic of London and the general co-ordination of all the various methods of dealing with it had ever been better done, or could be better done, than at present. Under the stress of war, we had had to run the railways in a combined way. If this arrangement was efficient during the war, were they to go back to the old system after the war? He sincerely hoped that the Government would find some way of making the nominal amalgamation of to-day a permanent one, and that, if that was done, the Government would do it along the lines suggested by Lord Reith, by a corporation which was neither private ownership nor nationalisation. He would not like to see the railways running road transport, but he would like to see a corporation running the railways and corporations running road transport and canals, and coastwise shipping, but all joined at the top in a pool, so that they could all run efficiently. They could all do what they can do best by themselves; and although one might be penalised yet they could be helped out from a financial point of view at the top.

Lord Balfour of Burleigh said that the first point he wanted to make was to record his satisfaction that it was now admitted on all hands, with our experience of three years of war, that an efficient railways system really was a prime necessity in the transport of this country. In considering the future of railways and other forms of transport, it was obvious that the first consideration was the achievement of an efficient system of transport. The interests of the public had to be paramount. The railways were not unmindful of the future. If the railways had been asleep when they had a monopoly, they certainly were not asleep now. The railways, individually and collectively, were thinking about the problems of the future, and before any decision was come to about the future of the transport systems in this country—particularly of the railways—consultation should take place with the railways themselves. The railways would be entirely ready to offer every possible co-operation.

Lord Monkswell recalled that last October he had brought forward a Motion on the subject of planning the railways for the post-war period. Some weeks later the railway companies had issued a communication to the press announcing that they were setting up a committee on their own account with the same object in view. He understood the railway companies committee was in touch with the Ministry of War Transport. He hoped the Government might be able to give some account of the lines on which the department and the committee were working.

Post-War Planning

The Minister of Works & Buildings (Lord Portal) explained the procedure being adopted by the various Ministries concerned for post-war reconstructions. The Ministry of War Transport was preparing its own scheme; the Ministry of Works & Buildings was doing likewise; the Paymaster-General was dealing in the first instance with electricity, until the Ministry of Fuel & Power gets into its stride, and water came under the Ministry of Health. Gas would come under the new Ministry of Fuel & Power. The location of industry would come under the Board of Trade. Reports as to all these were being collated and presented to a Ministerial Committee presided over by the Paymaster-General. These questions were urgent, but the right timing of them was also essential. There were no interests either in the industrial or social life in this country which were not vitally concerned with the operation of transport. It followed that a transport system could not be planned otherwise than in the light of a general policy which embraced these wider objectives. It was hardly an exaggeration to say that the war would be won by that side which could ultimately bring to bear the greatest transport resources and use them most efficiently. Nothing must be allowed to interfere with this, and it would be a grave mistake to introduce at this time controversial issues which would have the effect of diverting energies from the war effort. Let there be no mistake—any effective solution to the transport problems would be controversial. In the Ministry of War Transport and in the various organisations of transport itself, the necessary information was being collected. The various proposals and recommendations which were already in existence were being re-examined and from these a transport

policy would be formulated. If such a policy was to be realistic it would not only have to take into account the national, but the world situation at the termination of hostilities. It was provided deliberately in the agreement for the control of the railways that this control would be continued for at least one year after the end of the war, which would give the necessary time for the Government to bring forward its proposals.

Questions in Parliament

Below are summarised Answers to Questions in Parliament affecting transport. The Minister concerned and the date of the Answer are given in parentheses

Hinged Seats in Train Corridors

It is necessary to maintain full freedom of movement through the corridors of trains. I am afraid that the provision of hinged seats might cause obstruction, but I am having enquiries made to see if anything can be done. (Mr. P. J. Noel-Baker, Joint Parliamentary Secretary, Ministry of War Transport, June 10.)

Speed Limit

In view of the increase in the vehicles and manpower of the mobile police force which would be needed to enforce a statutory limit, the Government does not, at present, propose to adopt the suggestion to institute a 30 miles an hour speed limit to secure a reduction of petrol consumption and of road accidents. To save fuel and tyres, however, the Ministry of War Transport in collaboration with the Ministry of Information intend strongly to urge drivers of private cars not to exceed 40 miles an hour outside built-up areas. Instructions are being issued to all Government Departments to ensure that the drivers of their vehicles observe that limit except for Service reasons of over-riding urgency. (Mr. P. J. Noel-Baker, June 10.)

Price of Petrol

The latest increase in the price of petrol was given as a result of an estimated increase in the costs of the Petroleum Board. In reaching the estimate no account was taken of losses incurred by the oil companies in Roumania, the Dutch East Indies, or other enemy or enemy occupied territories. (Major G. Lloyd George, Minister of Fuel & Power, June 16.)

Second-hand Vehicles

I am aware that the prices of second-hand motor vehicles of various classes have substantially increased. The Minister of War Transport is appointing a small panel of consulting engineers to investigate the facts and to report to me. The matter is being treated as a matter of urgency. The committee of experts is to meet this week. (Mr. P. J. Noel-Baker, June 16.)

Alternative Fuels

Very full consideration has been and is being given to the possibilities of utilising alternative fuels in road vehicles. The recently announced Government scheme for the development of producer gas is one of the methods to be adopted for reducing the consumption of imported liquid fuel, and other alternatives, including the use of coal gas, methane, and electricity, are being examined. It should, however, be borne in mind that these alternative fuels, or the sources from which they are derived, are all in short supply. The amount of methane which can readily be made available for use is small and there are difficulties as to distribution. The Secretary for Petroleum will give full consideration to the needs of doctors and others engaged on essential work. (Mr. P. J. Noel-Baker, June 16.)

Transport in North Staffordshire

The North Staffordshire Transport Consultative Committee last met on January 26, 1942. Since then a Working Committee of operators has been dealing with complaints and preparing a plan for co-ordinated services. Additional buses have been drafted into the area. The spare parts position has been improved and additional staff has been provided for operation and maintenance. The result of these measures has been a substantial improvement in the services, but further efforts will be made to ensure that transport arrangements shall be adequate, especially in the winter months. For this purpose I think that staggering of working hours in the pottery industry will be necessary, and I shall be grateful for any help which Mr. Ellis Smith (Stoke—Lab.) can give me to secure its adoption. (Mr. P. J. Noel-Baker, June 16.)

Unused Basic Petrol Allowance

The Minister of Fuel & Power and I have considered the problem of the use by individuals of their remaining supplies of basic petrol after June 30 very carefully in the light of the views expressed in the House and of other representations which I have received. I was about to make an Order the effect of which would be to prohibit the use of petrol after June 30 except for the purpose for which petrol will be granted after that date; but, in order to ease the position of those who may have saved some petrol, the date on which the Order comes into force will be postponed by one month. (Mr. Geoffrey Lloyd, Joint Parliamentary Secretary, Ministry of Fuel & Power, June 17.)

Railway Transport of Beer

About eight trainloads of beer a day are despatched by rail from Burton-on-Trent. Arrangements made with the brewers for the better loading of wagons have reduced the wagons required by about one-fifth. (Mr. P. J. Noel-Baker, June 17.)

Petroleum Board Profits and Prices

Profits made by the Petroleum Board are not collected by the Treasury. (Mr. Geoffrey Lloyd, Joint Parliamentary Secretary, Ministry of Fuel & Power, June 17.)

Petroleum products obtained under Lend-Lease arrangements are sold by His Majesty's Government to the Petroleum Board on the basis of the commercial prices ruling at the time. I am not able to depart from the established rule not to publish the terms on which the Government purchases goods from suppliers. (Mr. Geoffrey Lloyd, June 17.)

Bengal Nagpur Railway Locomotive Performance

During 1938 the Bengal Nagpur Railway put into service two new express passenger locomotives of the 4-6-0 type classified G.S.M. and constituting a development of a successful design having the same wheel arrangement and known as the G.S. class. The new locomotives were fully described and illustrated in our issue of January 21, 1938. They were built by Robert Stephenson & Hawthorn's Limited, to meet the requirements of the Bengal Nagpur Railway administration under the supervision of the railway company's consulting engineers, Sir John Wolfe Barry & Partners, now Messrs. Wolfe Barry Robert White & Partners, to whom we are indebted for the following particulars of the results obtained during trials carried out in main-line passenger service.

Load behind tender	440 tons
Average combustion rate per sq. ft. of grate per hour	57·8 lb.
Average evaporation water per lb. of coal	6·78 lb.
Highest h.p. indicated	1,544
Speed at which attained	64 m.p.h.
Cut-off at which attained	27 per cent.

The mean hourly evaporation from the above works out at 14,900 lb.

These locomotives are running the complete trip of 700 miles without change from Calcutta (Howrah) to Nagpur, and we understand that on these long runs they give every satisfaction. No difficulty is experienced with the fire, which can readily be kept in good order largely due to the provision of rocking grates and adequate ash pans with hoppers. The maximum steam temperature shown is 630° F. The leading dimensions of these locomotives are :—

Cylinders	21½ in. dia. 26 in. stroke
Coupled wheels	6 ft. 1½ in. dia.
Boiler steam pressure ...	200 lb. per sq. in.
Heating surfaces :	
Evaporative	1,600 sq. ft.
Superheater	317 ,,
Total	1,917 ,,
Grate area	38 ,,

The total weight of the engine is 74 tons 18 cwt. ; a feature of the design is the low maximum load per axle of 17 tons, with the large eight-wheel tenders having space for 10 tons of coal and 4,750 gallons of water. The total weight with tender is 140 tons 11 cwt.

Staff and Labour Matters

Engineering Joint Trades

The trade unions catering for the engineering industry have formed an engineering joint trades movement, the objects of which are to deal with all matters agreed upon as being in the common interest of these organisations parties to the movement.

The composition of the movement consists of the Amalgamated Engineering Union, the Confederation of Shipbuilding & Engineering Unions and the National Union of Foundry Workers, and the National Negotiating Committee consists of sixteen members, as follow :—

Amalgamated Engineering Union ...	7
Confederation of Shipbuilding & Engineering Unions	8
National Union of Foundry Workers ...	1

The officers of the joint movement are :—

Chairman—President of the A.E.U.

Vice-Chairman—The Chairman of the Engineering Group Council of the Confederation of Shipbuilding & Engineering Unions

Joint Secretaries—The General Secretary of the A.E.U. and Secretary of the Confederation of Shipbuilding & Engineering Unions

Engineering Apprentices Wages

Rates of pay for apprentices, boys, and youths at 14 and 15 years of age employed in the engineering industry, have been agreed between the Engineering & Allied Employers' Federation and the Amalgamated Engineering Union. These rates are based on the appropriate district rate and national bonus of the fitter on the following percentage basis :—

Age	Percentage
14	15
15	20

Notes and News

Assam Railways & Trading Co. Ltd.—Dividends are announced at the rate of 8 per cent. per annum on the pre-preference shares and at the rate of 6 per cent. per annum on the 6 per cent. preference shares. Both payments are for the half-year ending June 30, 1942, and will be made on July 4.

New Midlands Waterway.—An important new waterway linking the Wash with the Midlands has been provided at a cost of approximately £1,000,000 by rendering the River Nene navigable for barge transport. The first shipment, a load of timber from Wisbech to Northampton, *via* Wellingborough, reached Northampton towards the end of May.

Another Japanese Underwater Tunnel.—The Domei Agency states that the construction of the world's longest underwater tunnel is being planned, to connect Shimonoseki, on the main island of Japan, with Kokura, on the island of Kyushu. The opening of the tunnel between Shimonoseki and Moji (also on the island of Kyushu) was referred to in our May 1 issue.

Condor Air Line Resumes Service.—The Condor Air Line, which was formerly controlled by German interests, is resuming service in Brazil under Brazilian ownership. It may be recalled that this company was compelled to suspend operations on December 16 last, when U.S.A. oil companies refused to supply petrol because of its German control. Since that time the shareholding has passed to native-born Brazilians. Earlier references to this company were made in our issues of January 16 (page 103) and February 13 (page 247).

German Wagon Building.—The report for the financial period ended September 30, 1941, of Düsseldorfer Waggonfabrik A.G., of Düsseldorf, covers 15 months, and shows a gross profit of RM. 7,010,000, compared with RM. 4,780,000 for the twelve months ended June 30, 1940. Investments totalled RM. 2,150,000 (against RM. 2,500,000 on June 30, 1940), and the working capital was RM. 4,820,000 (RM. 5,250,000 on June 30, 1940). Some figures for other wagon manufacturers in Germany were given in our April 24 and May 22 issues.

Italian Railway Electrification.—The Italian Minister of Transport, Host Venturi, stated recently during the discussions on the Italian Budget that some 7,000 million lire would need to be provided for the completion of the railway electrification programme, which required the conversion of a further 4,000 km. (about 2,500 miles) of route. He added that the system of the Italian State Railways would need to be improved by further doubling of single line sections, and the quadrupling of some important sections, involving a total expenditure of 137,000 million lire.

Southdown Motor Services Limited.—A gross revenue of £1,369,573 (£1,073,946) for the year to March 31, 1942, was secured by this company, which is controlled jointly by the Southern Railway Company and Tilling & British Automobile Traction Limited. After deducting all items chargeable against revenue, including depreciation, Roads Act duties, rates, and taxes £544,738 (£282,196), and war damage insurance £8,967 (£12,563), there remains a profit of £58,778 (£83,903), to which must be added £42,204 brought forward, making a total of £101,182 (£137,404). It is proposed to repeat the dividend at 10 per cent., absorbing £75,000, and to carry forward £26,182.

Great Southern Railways (Eire).—For the 23rd week of 1942 the Great Southern Railways (Eire) report passenger receipts of £37,733 (against £42,250), and goods receipts of £48,567 (against £47,173) making a total of £86,300 (against £89,423) for the corresponding period of the previous year. The aggregate receipts to date are passenger £748,302 (against £834,792), goods £1,372,354 (against £1,157,654), making a total of £2,120,656 (against £1,992,446).

New Railway - Associated U.S.A. Buses.—Some few weeks ago the Missouri Pacific Trailways received delivery of 16 new diesel-engined buses which should prove of considerable value in enabling this subsidiary of the Missouri Pacific Railroad to meet the increasing road transport requirements resulting from war conditions. These vehicles have been placed in service on three routes, namely, 10 between Memphis and Hot Springs and Memphis and Texarkana, and 6 between Little Rock and Houston. Twelve of the vehicles seat 33 passengers, and the remaining four seat 29. These buses are in addition to 12 diesel-engined vehicles delivered last December.

Ribble Motor Services Limited.—For the year ended March 31, 1942, this company, which is controlled by the L.M.S.R. and Tilling & British Automobile Traction Limited, secured a total revenue of £2,047,711 (£1,837,445). After deducting all expenses including £200,000 (same) for depreciation and renewals and £489,601 (£276,978) provision for taxation, there remains a balance of £139,150 (£230,085), which, added to £68,977 brought forward, makes a total of £208,127. The preference dividend absorbs £13,000, and the dividend of 10 per cent. for the year on the ordinary shares again takes £120,000, leaving £75,127 to be carried forward.

Road Motors in New Zealand.—The sale of motor vehicles in New Zealand during 1941 was 53 per cent. less than that for 1940. New registrations in 1941 numbered 3,324 passenger motorcars (7,253 in 1940), 937 lorries and buses (1,714), and 333 motorcycles (730). The following table lists registrations by countries of origin :—

Source	Passenger cars		Lorries and buses		Motor-cycles	
	1940	1941	1940	1941	1940	1941
United States-Canadian	1,684	212	1,155	592	28	21
British	5,454	3,029	559	345	702	312
German	36	31	—	—	—	—
French	35	12	—	—	—	—
Italian	44	40	—	—	—	—
Total	7,253	3,324	1,714	937	730	333

L.M.S.R. Tyre Inspection.—The L.M.S.R. has appointed a woman tyre inspector (Mrs. E. Robinson), the first woman to occupy this position. She is responsible for examining the tyres of 924 motor vehicles and 885 trailers located at some 40 depots in the London area, ranging from the tyres of 8 h.p. cars up to the large pneumatics on 6-ton vehicles. Tyres must not be allowed to wear beyond the state when they can be repaired, and must be maintained at the right pressure; also the wheels should be kept in true alignment. The tyre examiner is to be supplied with a special flint and nail extractor, tyre pressure gauge, track-alignment equipment, and so forth. The L.M.S.R. owns a fleet of 4,300 motor vehicles and 4,500 trailers, and it is proposed to appoint tyre examiners in every district on the system. The company's tyre repair depots have been extended so that repairs can be dealt with immediately.

Central Uruguay Railway Co. of Monte Video Ltd.—The directors announce that although in accordance with the trust deed securing the 5 per cent. second debenture stock, interest accrues as a fixed charge from July 1, 1942, it will not be possible to meet the payment which should be made on December 31 next. The situation is now under discussion with some of the principal stockholders, and proposals will be submitted to the stockholders as soon as possible.

British and Irish Railway Stocks and Shares

Stocks	Highest 1941	Lowest 1941	Prices June 19, 1942	Prices Rise/Fall
G.W.R.				
Cons. Ord.	43⅜	30⅜	45¼	—
5% Con. Pref.	109½	83½	107½	– 2
5% Red. Pref. (1950)	105½	96½	106	—
4% Deb.	113½	102½	108½	– 2
4½% Deb.	115	105¾	111½	– 1
4½% Deb.	121½	112	117½	– 3
5% Deb.	132	122	130	– 3
2½% Deb.	70	62⅜	73	—
5% Rt. Charge	129½	116	129½	—
5% Cons. Guar.	128	110½	125½	– 2
L.M.S.R.				
Ord.	17½	11	19½	—
4% Pref. (1923)	53	33½	54	– 1
4% Pref.	68½	48½	71	– 1½
5% Red. Pref. (1955)	97¾	77	99½	—
4% Deb.	105¾	97	103	– 1
5% Red. Deb. (1952)	110½	106½	109½	—
4% Guar.	100	85½	100½	—
L.N.E.R.				
5% Pref. Ord.	3⅜	2⅜	4½	—
Def. Ord.	2	1¼	2¼	—
4% First Pref.	52½	33	52½	– 1½
4% Second Pref.	19⅜	10	21½	– ½
5% Red. Pref. (1955)	79½	52	89	—
4% First Guar.	90½	74½	93½	– 1
4% Second Guar.	80½	59	84½	– 1
3% Deb.	79½	68⅜	79	—
4% Deb.	104	91½	102	– 1
5% Red. Deb. (1947)	106	102½	104	—
4½% Sinking Fund Red. Deb.	103½	99⅛	103	—
SOUTHERN				
Pref. Ord.	65½	43½	64½	– 1
Def. Ord.	15⅞	9	16½	+ ⅛
5% Pref.	107	77½	106½	– 1
5% Red. Pref. (1964)	107	89½	108½	—
5% Guar. Pref.	128	111	125½	– 2
5% Red. Guar. Pref. (1957)	114½	107½	111½	– 2
4% Deb.	112	102½	106½	—
5% Deb.	130½	119	128	– 1
4% Red. Deb. (1962–67)	108½	102	108½	—
4% Red. Deb. (1970–80)	108½	102½	108½	—
FORTH BRIDGE				
4% Deb.	99½	90½	107§	– 1
4% Guar.	99	85½	103½§	– 1
L.P.T.B.				
4½% "A"	120½	109½	115½	– 1
5% "A"	130½	115½	125½	– 1
4½% "T.F.A."	103½	99½	100	—
5% "B"	117	102	113½	—
"C"	46½	28½	41	+ ½
MERSEY				
Ord.	24½	19½	21½	—
4% Perp. Deb.	100	90	100	—
3% Perp. Deb.	73½	63	78	—
3% Perp. Pref.	58	51½	58	—
IRELAND				
BELFAST & C.D.				
Ord.	4	4	9	—
G. NORTHERN				
Ord.	14½	3	19½	– 1/16
G. SOUTHERN				
Ord.	14½	5	21	—
Pref.	17	10	17	– 1
Guar.	44	16	36½	—
Deb.	61	42	61	– ½

§ ex dividend

Railway Stock Market

Although the volume of business was greatly reduced, there has been no heavy selling of securities as a result of the adverse turn in the war news. Early in the week prices were marked down as a precautionary measure, but the undertone remained fairly steady in the absence of liquidation, and sentiment generally was assisted by the fact that, at the time of writing, declines in gilt-edged stocks have been only fractional in character. The behaviour of Stock Exchange markets has again provided one of the many indications of continued confidence in the future and willingness to be prepared to take more than a short view. In fact, in many directions, securities have remained in short supply in the market and were again not always easy to obtain in any amount. As was to be expected, home railway stocks moved closely with the general trend, but in some of the junior issues, declines on balance were only fractional, despite the check to the increased attention which was tending to develop on hopes attaching to the forthcoming interim dividend decisions. The market has not revised hopeful views as to the latter, but in existing circumstances it can hardly be expected that home railway junior stocks are likely to move against the general trend in security values, despite the substantial yields offered. On the other hand, various prior charges of the main-line railways were a point or more lower on balance, and in some cases yields in this section now appear to be attractive because of their excellent investment merits. Elsewhere, the large yields obtainable on L.M.S.R. senior preference, and on L.N.E.R. second guaranteed, seem very generous, bearing in mind that their full dividends can be considered virtually assured under the wartime financial agreement. At the time of writing the marking-down of prices in evidence earlier in the week has attracted buyers, and prices are tending to make some recovery, although in many directions it is doubtful if the volume of business has been sufficient to test quotations adequately. There have been sharp reactions in South American railway stocks which had been attracting increased attention in recent weeks, but, as elsewhere, the lower prices made this week were due more to falling off in demand than to actual selling.

Great Western ordinary has declined to 45, compared with 45½ a week ago; the preference stock went back from 108½ to 107 ,the consolidated stock to 124, and the 4 per cent. debentures to 107½. L.M.S.R. ordinary was 19⅜, compared with 19⅝ a week ago, and the senior preference moved back from 72 to 70, and the 1923 preference from 55 to 53½. L.M.S.R. 4 per cent. debentures were fractionally lower at 103, and the guaranteed stock lost a point to 99½. Among L.N.E.R. issues, the first preference has declined on balance from 54 to 52½; the second preference was 21½, compared with 22 a week ago. L.N.E.R. first and second guaranteed at 93 and 84 were each a point down on the week; lower prices also ruled for the debentures; the 3 per cents were 78, and the 4 per cents, 102. Among Southern stocks, the preferred was sold and has lost a point to 63½ at the time of writing, and the deferred was 16, compared with 16¼ a week ago. Southern 5 per cent. preference reacted from 107½ to 106, the guaranteed stock from 126½ to 125, and the 4 per cent. debentures from 106½ to 105½. Among London Transport issues, the "A" stocks moved lower in accordance with the general trend, and the "C" was 40¾, compared with 41 a week ago.

Declines ranging up to a point have been shown among stocks of South American railways at the time of writing, but, as elsewhere, there was no heavy selling. The check to recent demand caused a reaction to 53 in San Paulo, while Leopoldina debentures went back to 43, and Antofagasta preference to 40. Canadian Pacific eased. Various Indian railway stocks were again better on balance.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open 1941-42	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1941	No. of Weeks	Aggregate Traffics to date: Totals: This Year	Aggregate Traffics to date: Totals: Last Year	Aggregate Traffics to date: Increase or Decrease	Shares or Stock	Prices: Highest 1941	Prices: Lowest 1941	Prices: June 19, 1942	Yield% (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	634	14.6.42	23,000	+ 3,840	24	504,750	426,490	+ 78,260	Ord. Stk.	10½	3½	9½	Nil
	Argentine North Eastern ...	753	13.6.42	ps. 239,400	+ ps. 59,600	50	ps. 9,101,900	ps. 7,214,800	+ ps.1,887,100	,,	4	1	5	Nil
	Bolivar	174	May,1942	4,605	+ 405	21	23,063	19,132	+ 3,931	6 p.c. Deb.	5	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	8	2½	13½	Nil
	Buenos Ayres & Pacific ...	2,801	13.6.42	ps. 1,570,000	+ ps. 35,000	50	ps. 73,346,000	ps. 72,038,000	+ ps.1,308,000	Ord. Stk.	7¾	1¼	5	Nil
	Buenos Ayres Great Southern	5,080	13.6.42	ps. 2,132,000	+ ps. 59,000	50	ps.121,871,000	ps.111,259,000	+ ps.10,612,000	Ord. Stk.	10¾	3¼	8½	Nil
	Buenos Ayres Western ...	1,930	13.6.42	ps. 1,023,000	+ ps. 65,000	50	ps. 43,251,000	ps.39,697,000	+ ps.3,554,000	,,	9	2½	7	Nil
	Central Argentine	3,700	13.6.42	ps. 1,854,900	+ ps.114,500	50	ps. 87,981,800	ps 82,291,150	+ ps.5,690,650	,,	8½	2¼	6½	Nil
	Do	—	—	—	—	—	—	—	—	Dfd.	2½	¼	3½	Nil
	Cent. Uruguay of M. Video...	972	13.6.42	29,050	— 534	50	1,284,743	1,180,700	+ 104,043	Ord. Stk.	9½	1	5	Nil
	Costa Rica	262	May, 1942	15,651	— 3,810	46	228,220	218,358	+ 9,862	Stk.	15½	11½	13	Nil
	Dorada	70	May, 1942	15,882	+ 2,982	21	63,546	62,100	+ 1,446	1 Mt. Db.	97	97	90½	6½
	Entre Rios	808	13.6.42	ps. 269,100	+ ps. 24,000	50	ps. 12,983,500	ps.10,635,300	+ ps.2,348,200	Ord. Stk.	6½	½	6	Nil
	Great Western of Brazil ...	1,030	13.6.42	8,000	+ 1,200	24	238,700	229,000	+ 9,700	Ord. Sh.	11/-	1/-	½	Nil
	International of Cl. Amer. ...	794	Apr.,1942	$100,091	— $36,249	16	$613,915	$429,516	+ $184,399	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	¾	6d.	½	Nil
	La Guaira & Caracas... ...	22½	May,1942	5,965	+ 730	21	32,133	30,145	+ 1,988	—	—	—	—	—
	Leopoldina	1,918	13.6.42	30,024	+ 4,474	24	697,101	560,921	+ 136,280	Ord. Stk.	4	½	4½	Nil
	Mexican	483	14.6.42	ps. 284,900	— ps. 19,300	24	ps. 8,025,300	ps. 7,479,500	+ ps. 545,800	,,	⅜	¼	½	Nil
	Midland of Uruguay ...	319	Apr.,1942	13,856	+ 1,640	41	136,984	120,202	+ 16,782	—	—	—	—	—
	Nitrate	386	15.6.42	7,858	+ 3,807	23	71,624	47,008	+ 24,616	Ord. Sh.	66⅜	1½	3½	3⅞
	Paraguay Central	274	13.6.42	$3,066,000	— $706,000	50	$177,932,000	$167,486,000	+ $10,446,000	Pr. Lt. Stk.	43/-	29	45½	13½
	Peruvian Corporation ...	1,059	May, 1942	81,005	+ 17,967	47	833,448	709,504	+ 123,944	Pref.	6½	1⅛	11½	Nil
	Salvador	100	Apr., 1942	c 71,000	+ c 5,000	41	c 853,172	c 683,683	+ c 169,489	—	—	—	—	—
	San Paulo	153½	7.6.42	35,744	— 7,831	23	805,115	836,943	— 31,828	Ord. Stk.	52	24½	55	3½
	Taltal	160	May,1942	5,490	+ 2,395	47	49,710	30,545	+ 19,165	Ord. Sh.	1	6/-	1⅜	Nil
	United of Havana	1,346	13.6.42	29,453	+ 9,628	50	1,587,729	1,210,621	+ 377,108	Ord. Stk.	2½	⅛	3	Nil
	Uruguay Northern	73	Apr.,1942	980	— 41	41	12,070	11,329	+ 741	—	—	—	—	—
Canada	Canadian National	23,562	14.6.42	1,383,400	+ 210,600	24	30,373,000	25,572,800	+ 4,800,200	—	—	—	—	—
	Canadian Pacific	17,139	14.6.42	930,800	+ 75,800	24	21,828,000	17,945,400	+ 3,882,600	Ord. Stk.	13⅞	7⅛	10½	Nil
India†	Barsi Light	202	Mar.,1942	15,570	— 390	52	165,217	167,280	— 2,063	—	—	—	—	—
	Bengal & North Western ...	2,090	May, 1942	281,550	+ 6,732	8	555,000	555,860	— 860	Ord. Stk.	345	253	352½	5⅛
	Bengal-Nagpur	3,267	10.3.42	263,175	— 127	50	9,354,150	8,504,657	+ 849,493	,,	101	95⅛	96	4⅞
	Madras & Southern Mahratta	2,939	Mar. 1942	253,125	+ 25,105	52	7,338,605	6,278,738	+ 1,059,867	,,	105⅞	101½	99	7⅛
	Rohilkund & Kumaon ...	571	May, 1942	58,950	— 12,488	8	119,550	140,639	— 21,089	,,	342	290	352½	4⅞
	South Indian	2,402	31.3.42	190,120	+ 43,235	52	5,358,080	4,609,099	+ 748,981	,,	100	87	95§	3½
Various	Beira	204	Apr.,1942	80,224	—	30	534,115	—	—	—	—	—	—	—
	Egyptian Delta	607	28.3.42	8,235	+ 2,841	49	315,364	224,034	+ 91,330	Prf. Sh.	1½	29/-	2½	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	68	45	35	10
	Midland of W. Australia ...	277	Apr., 1942	25,627	+ 9,494	37	203,111	150,333	+ 52,778	Inc. Deb.	90½	85½	89½	6½
	Nigerian	1,900	28.2.42	97,375	+ 29,933	47	2,894,620	2,124,026	+ 770,594	—	—	—	—	—
	Rhodesia	2,442	Apr., 1942	503 217	—	30	3,382,397	—	—	—	—	—	—	—
	South Africa	13,291	2.5.42	789,828	+ 64,610	6	3,580,192	3,279,345	+ 300,847	—	—	—	—	—
	Victoria	4,774	Jan., 1942	1,301,285	+ 378,792	29	7,938,536	6,547,339	+ 80,660	—	—	—	1	1

Note. Yields are based on the approximate current prices and are within a fraction of ⅛ Argentine traffics are given in pesos
† Receipts are calculated @ 1s. 6d. to the rupee § ex dividend

Yield% (See Note)
Nil
Nil
Nil
Nil
Nil
Nil
Nil
Nil
Nil
Nil
6½
Nil
Nil
—
Nil
—
Nil
Nil
—
3 2/3
13 1/3
Nil
—
3⅓
Nil
Nil
—
—
Nil
—
5 1/2
4 1/2
7 1/2
4 1/2
3 1/10
—
Nil
10
6 1/10
—
—
—

XUM